

Craig N. Smith  
Ruanne E. Smith

July 6, 2000

Eric P. Newman  
Numismatic Education Society  
6450 Cecil Avenue  
St. Louis, Missouri 63105

Re: Breen Manuscript

Enclosed please find a copy of the Breen Manuscript.

Should you have any questions regarding the above, please do not hesitate to contact the undersigned.

Very truly yours,



Craig N. Smith

CNS:res  
enclosure

Dear Stanley,  
As you requested, here is a brief summary of the current status of the Mexican Ingot report.

1. It is complete except for the conclusions. Photos are properly mounted and classified, on the assumption that the report will be published.

2. Present tentative conclusion: "possibly genuine"--but with problems not resolvable until certain (named) tests are completed. Once these tests are done, we can reach certainty of either genuineness or falsity, but not without them. Only certain tests are relevant.

3. One of the key tests (the earliest) will require me to come to New York and physically examine certain selected ingots under a binocular microscope. Available photographs do not allow reliable conclusions to be drawn about certain issues; nothing less than stereo microscopy will do, as detailed below.

a) Were any of the PHSV stamps impressed later than the 1770 revalidation stamps? From the photographs of certain ingots, this question is ambiguous. If even one PHSV stamp followed a 1770 revalidation stamp, the entire group at once is proved fraudulent. PHSV can only mean PHILIPPVS V (second reign 1724-46), and any anachronism of 24 years would be incompatible with a hypothesis of genuineness.

b) Was even one 1744 or 1746 date impressed after a 1770 revalidation stamp? Same comment as to a). Note especially MEX-113, 114, for crucial instances.

c) Certain ingots dated 1744, and others dated 1746, share a common HISP ET ID mold, which is identifiable by a plain crack--fine and short in some, much heavier and longer in others. If even one 1744 is from a later (more heavily cracked) state than even one 1746, that is another anachronism leading to condemnation of the whole group. (This is entirely aside from the question of why--when there was so large a number of HISP ET ID molds used on the forty-odd ingots that show any of these letters--a single damaged mold would have been held over two years for use on both 1744 and 1746 ingots!?. The 1744's: FO-358A, MEX-103, 115; the 1746, MEX-111.)

4. Beyond physical examination---which I must do personally---the major test required is x-ray diffractometry, of a kind that can be done in any laboratory equipped to do x-ray crystallography; this can be interpreted by any technician once he has been instructed what to look for. As this was interpreted to me by two Berkeley physicists, the line of reasoning is simple enough. Cold, cast into ingots, develops microcrystalline structure on cooling. Compression, torsion, or any other kind of stress produces rotational disturbances in the microcrystalline structure (measured in seconds of arc), and the pattern differs with age as well as with the kind of stress. Recent stress shows far more than older stress because there is some elastic recovery or other long term changes. A difference of 24 years (as between stamps applied in 1746 and others applied in 1770) will be apparent, and the difference will show which came first. A difference between 18th century stress and similar stress applied in 1953 or 1954 will be even more apparent, and the difference will show which came first. That can presumably be told both on demi-ingots (presumably chopped up by pirates, and or possibly chopped up at Penn Smelting Company in 1950s?) and on intact ingots.

Possibly we can persuade Dr. Vladimir Clain-Stefanelli to have tests done on any of the Smithsonian's ingots at National Bureau of Standards.

I am confident that if Mr. Ford genuinely believes in the authenticity of these ingots, he will take any necessary efforts to obtain physical access to the ones alluded to above (with FO or MEX prefixes, as found on his photographs), and cooperate in making any necessary arrangements for the relevant laboratory tests, now that we know what they are. The sooner we can obtain these results, the sooner I can issue the report in its final form.

In haste--

Walter Breen

April 9

COPY

Dear Stan--

Enclosed is the letter about the ingots, as promised. I didn't finish it to my satisfaction before 3 PM by which time it was too late to telephonically dictate it to a secretary at FCI (they would have left by 6 PM EST). If you have not received this by April 10, you will know that I have called in and dictated a text so that you could have it at hand for John Ford.

There is one source of difficulty. You told me not to deal with Ford directly. Nevertheless, the six ingots named in the letter (the names are number-letter designations beginning with FO or MEX, from Ford's negatives) are, or at least some until recently were, either in Ford's own collection or possibly that of his friend Werner Amelingmeyer. In either event--or if the ingots now belong to other local investor friends of Ford--the only place Ford is likely to permit me to examine them under a binocular microscope would be in his arsenal at 176 Hendrickson Ave. (If you've been there, you know why I call it the arsenal; if not, you have a mindblowing experience coming. Get him to talk about what he proposes to do when the Russkies invade, assuming he hasn't yet moved everything out to ~~Wernermeyer~~ Rightsville or Birchland or wherever it is. Brrrrrr!) That sounds OK, but if I examine the ingots in his presence he will be continuously grilling me, hoping to get an immediate vindication. I do not know if I dare spring an unpleasant conclusion on him when/if I see it in the binocular microscope. I am frankly afraid of what he would do; Stan, I am scared shitless! I am the only person who can either save his hide or send him to prison for fraud. I do not want to bear the immediate brunt of his reaction ~~if~~ I suddenly do a doubletake with my eye up against the microscope eyepiece. Ford is entirely capable of violence. Nor do I think I can conceal either a yes or a no verdict from him without his becoming extremely suspicious. That is another group of reasons for my agreeing with you that I should not deal with him directly. But where else can we examine them, and why not at his home? What excuse can we give him that would mean a continental damn? Would a laboratory have maybe better microscopes? Or would the diffractometry test suffice to tell which stamp came first--in which case this would be an argument against my seeing them? I do not know what to do. It is now in your lap, and Ford's, and I wish you both great joy of it. I have even been wondering if he would die first and make the whole problem moot--or if I would, and no longer have to deal with it! It occurs to me that the x-ray tests could be done at the Smithsonian, without anyone bothering to tell Ford until after the results have come in and been interpreted; perhaps before we talk to him and try to get him to bring the ingots for physical examination. They don't have to be the same ingots chosen for diffractometry; what is needed for the latter is ingots that have both date stamps and the 1770 revalidation stamp, e.g. Lilly Accession # 68.159.1416, 1422, & 1418, all of which are dated 1744 and show the 1770 revalidation stamp as well. (They cannot be used for the physical examination; only the six ~~above~~ mentioned in the main letter [MEX-113, 114, 103, 115, 111 and FO-358A] can be.)

The sooner you talk to Ford, the sooner I can make plans for coming to NY and/or England. Thanks for all you've done; and maybe in a week or so I will be saying "Thank God that's over with."

Best  
[Signature]

DRAFT

PRELIMINARY REPORT  
CONCERNING A HOARD OF 18TH CENTURY MEXICAN GOLD INGOTS

Walter Breen  
Vice President, FCI  
200 I.U.Willets Road  
Albertson, LI, NY 11507

During the period 1956-58, a group of approximately forty gold ingots and fragments of ingots came to light from a source not known to have been connected with the numismatic profession. These ingots and demi-ingots or fragments bore a variety of stamps, some woodblocked reading HISP ET ID (= Hispaniarum et Indiarum, i.e. "(gold) of the Spanish and Indian (royal domains)"), others apparently metal and including statements of fineness (as XXI, i.e. 21 Carats) or of origin (o above M = the mark of the royal mint at Mexico City), still others including the dates 1741, 1744 or 1746. Some of those with the date 1744 or <sup>1746 or</sup> with no date at all, but no other dated ingots, also bore a round stamp resembling that on the Pillar or Dos Mundos dollars, in each case without more than traces of a date. Others bore an approximately round but bordured stamp showing <sup>a</sup> ~~one~~ cantoned cross device <sup>similar to that</sup> common to Peruvian gold coins but indicating some connexion with the royal possessions: <sup>M. V.</sup> ~~two~~ and <sup>two</sup> castles in the four quarters or cantons, <sup>compared to the normal lions and castles for León and Castile.</sup> These gold ingots attracted little numismatic attention except among a few specialists prior to 1965, when one was pictured in the Encyclopedia Britannica, though another had been illustrated in Robert I. Nesmith's book "Dig for Pirate Treasure," N.Y., 1958. However, following on another controversy involving the man who distributed many of these ingots, they were condemned by Theodore V. Buttrey as forgeries, without his having given them any detailed study, and on grounds which now appear to have been grossly insufficient.

The purpose of the present study is to reopen the question of their genuineness or falsity, especially as in recent years this has been central to allegations of fraud made against their distributor.

Because the entire group is linked by source, by fabric, and in particular by reappearance of the identical stamps on many of them, it will become readily apparent that to establish the falsity of any one ingot from this source is to condemn them all, whereas to establish the genuineness of any one is to condemn them all.

(There are several tangential exceptions, <sup>among them</sup> two casts in the Smithsonian Institution, and the so-called Tubac ingot, which are not germane to the present inquiry, but which have been used as a means of condemning the rest, despite their different origin and fabric.)

As no documentation is known for any of these ingots, nor for anything similar, nor are any of the stamps identical with anything else known in Mexican numismatics, clearly any determination of their status as genuine or counterfeit will have to derive from physical properties of the individual ingots and fragments, exactly as with comparable studies of other obscure numismatic series; and in fact, the type of detective work necessary for arriving at even a tentative decision on these is precisely based on the methods used in various comparable inquiries in ancient numismatics.

These methodological considerations include the following:

3. Metallic composition, as compared with modern and with 18th century gold coins from Mexico.

1. Manufacturing methods, as compared with known landmarks in the history of technology.

2. The fabric of the stamped impressions.

4. Weight, especially as compared with the weight standards known

to have been in use in 18th century Mexico.

6. Source, if determinable, e.g. treasure trove.

5. Relation of such items to the economics, the history, and the common practice of the day.

These considerations are routine and perfectly general (*mutatis mutandis*, they could apply to anything from Roman *aes rude* or South Indian or Chinese silver to the present day); their whole point is that they can be used in the absence of documentation about the particular numismatic items, and used reliably to arrive at a decision of whether those were made when and where they were claimed to have been, or whether they were of more modern origin.

These criteria, applied to the Mexican ingots under present investigation, are susceptible to the same kind of objective test as in any other series; and the point needs to be stressed here, as elsewhere, that the identities of previous owners are in no way evidential as to either genuineness or falsity of any numismatic items. Honest people have been deceived, and dishonest people have been known to handle genuine items. This needs to be reemphasized owing to remarks by Buttrey, ~~XXXXXXXXXX~~ Eric P. Newman, and others, that such items must be judged by (among other things) "the company they keep." Without indulging in personalities, one may still recall that another term for that is "guilt by association," a concept which has no force in law but which was used to devastating effect during the 1950's by the unlamented Senator Joseph R. McCarthy; and in the present context any such concept has no purpose except to create a prejudice against the items in question. Prejudice is clearly antiscientific. Scientific objectivity demands that these items be evaluated as though no controversy had taken place.

There is subjoined a catalogue of the known ingots, with their weights where these could be ascertained (in some instances I have had to work from photographic contact prints, as the original ingots have been unavailable for examination). Weight is a factor on unmutilated ingots; it becomes useless as a criterion on ingots which were chopped into fragments, as no less than 17 of the known survivors had been.

Description of the individual ingots has proved difficult insofar as adequate description requires a compact and efficient way of distinguishing any one ingot from any other of similar size, weight, and stamping; it also requires a reliable method of showing punch linkages. The method adopted herein is as follows:

Each ingot appears to have one principal face with the most important stamps. This is listed as though it were an obverse. The face directly opposite is treated as though it were a reverse; then the narrower faces (four on rectangular solids) are referred to, from "obverse," as N, S, W and E of the "obverse" as though the latter were facing north. In other words, top edge of "obverse" is treated as north, and the N face will be the narrow one adjacent to the latter, and similarly for the other compass directions. A more complex ad hoc method is necessary for those not rectangular in shape.

The stamps themselves fall into a limited number of classes but a surprisingly large number of individual punches and logotypes or gang-punches. They were affixed for what appear to be partly discernible purposes and partly ~~from~~ unknown purposes, and the classification here chosen at once reflects the fact and eases demonstration of identical punches' being shared from one ingot to another. An immediate remark here is that it is exceedingly unlikely that a given individual punch would have lasted many years; and it is also evidence

of falsity if a later dated punch was impressed before an earlier dated punch, whereas the contrary would be consistent either with genuineness or falsity. If deterioration in a single punch could be demonstrated, this would be evidence of chronological sequence from one ingot to another. ~~and~~ Any inconsistency would be evidence of falsity--in particular, if one could find evidence that pieces of different dated ~~1741's and 1744's~~ were made at the same time, or that the 1741's followed the 1746's, or that the 1770 revalidation stamp preceded affixing of another stamp of earlier date, or that a later state of one punch is found on a 1741 or 1744 ingot than on a 1746.

The extreme profusion of individual punches points--as always in numismatics--to a large scale operation, of which only a limited proportion has survived. Claims that these ingots were made during the 1950's have to be considered in this context.

Weights and metallic compositions, where the latter could be ascertained, have to be compared with the weight standards and fineness standards actually in use in 18th century Mexico. This phase of the research has been extremely difficult. Even in the 18th century, the actual Spanish and Mexican standards were not generally known in England or the USA, and the figures I have been able to derive from both 18th century texts of laws (cedulas), 18th and 19th century discussions of these issues by people concerned with foreign coins, and 20th century texts on metrology, have yielded certain inconsistencies. An important point here is that some of these texts are extremely obscure and known today only to specialists; whether they could have been known to alleged 1950's fabricators of these ingots is another question. An additional complication is that the Spanish weight standards differed from one locale to another.

As in any other numismatic investigation, weights of a large number of numismatic items of a given kind can be used to ascertain if con-



formity to a single standard was in fact intended. This issue has been investigated herein probably more thoroughly than any other single point aside from the fabric of the stamps themselves, and we shall return to it following the catalogue of ingots, as part of a more general discussion.

#### CATALOGUE

##### I. INGOTS DATED 1741

1548



1548 MEXICO-Philip V of Spain 1741 Gold Ingot: Mexico City Mint. Obv. HISP. Rev. Circular stamp with cross potent, with castle in lower right quarter; MF in lower left quarter (the initial of the mint masters, Manuel de la Peña and Francisco de la Peña Flores); Large V in top right quarter; first section (castle) not distinct; O over M (Mexico) to left; XXII incused, date 1741 above. This bar, with other treasure, supposedly found on a small island off the coast of Florida in 1955. Size 45 x 25 x 6 mm. Weight 119.10 grams. Worth upward of (7500.00) PLATE

QS 3/20/72

PRICE REALIZED 3190 00

gms: 119.10





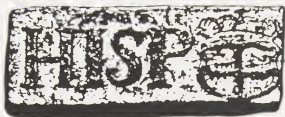
ny. [JF] 16X.105 / F0.306

grs. 2668.67  $\pm$  .17  
gms. 172.927



on photo 7.10730  
flanking 2 Co. 11/24/77 503 f680

grs. 156.41  
gms. 243.77



Wg. F0360A  
Werner Amelgmeys coll., bought 4/20/66

~ "3186.15"  
grs. "3576"  
gms { "232.67 ± .34"  
"231.72"



4812



4812

gm. 3218.30 (cut)  
gr. 208.54

4812A = Gitsm: 270

grs. 3218.30  
gms. 208.54



SI Neg. 73-11519  
73-11520  
Lilly 68-159-1423

Dark, atypical color.  
(Cost? No known  
prototype)

gms 263.78  
grs. 907.75



neg. FO 359A = WA3  
Werner Amelinger coll.

grs. 5070.81 ± .34  
gms. 328.586 ± .025



~~Finden~~  
~~no. 12.12.2~~

neg. FO-118

Dr. Joseph Dollinger coll. JD 'R'

~~HISPETID~~

grs. 5002.40

gms. 342.136

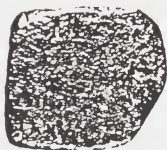


neg. FO 359B = WA 4

Werner Indlingner coll. 7/1/66

grs. 675.70 ± .40

gms 413.12 ± .06



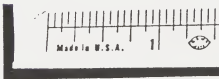
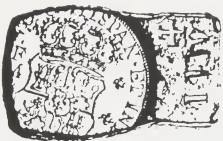
SI 73-11549  
73-11550  
Lilly Acc. No. 68-159-1416

grs. 1890.90  
gms. 122.5286



By Photo  
Shelton 11/21/72: 504 f800

grs. 2458.07  
gms 159.28



neg. FO-309A/MEX-104

grt.  $2496.80 \pm .20$  (cu)  
gms. 161.78



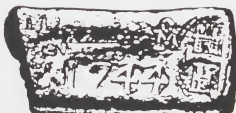
Ex Hess/Leu 10/17/62: 856

Plating & Co. 11/23/72: 505 £ 1050.

over

grt. 2772.73  
gms 179.67





neg. FO 360 B  
Werner-Amelingmeyer coll.

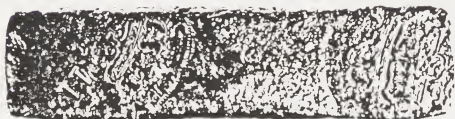
5791282  
grs. 2946.95  
gms. 190.929  
191.0394 ± .106



242

"Approx. 8 oz. less 10 grains."  
gms ? 248

QS 73:242 "5000. 5x Kreitzky 6/10:362.



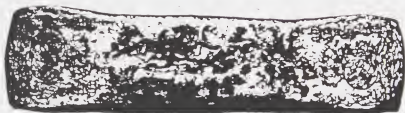
SI 73.11531  
Lilly 68.159.422

AU 98.6  
Ag 1.4  
Cu -0  
Ti 0.01  
Co 0.01  
Pb 0.001  
(BMFA Estm 75.301)  
Alloys 1484184  
Castellon 57.9416  
M 1.159482  
grm 4116.35  
grm 266.75



SI 73.11531  
Lilly 68.159.1418

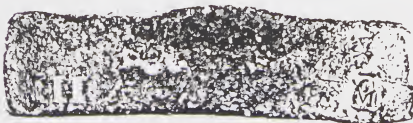
A 156.78447  
C 61.243915  
M 1.2248787  
grt. 4348.51  
grs 28.779



No ruler on photos. Possibly minutely reduced.  
neg. FO-303/MEX-108

A 158.01159  
C 61.72728  
M 1.2344658

grs. 4382.55 ± .15  
gms. 283.984<sup>13</sup>



A 177.21539  
C 30.814906  
M 1.5907453

grs. 5469.89  
gms. 754.443

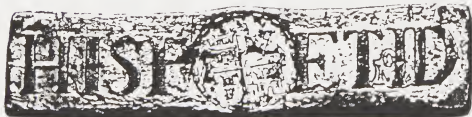
SI neg. 73-11525  
73-11526  
Lilly 68-159.1421

See Ency Brit. at 'Numismatics' p. 21.



BM photo 7.10730  
 Glendinning Co. 11/23/72: 506

A 199.25018  
 C 77.832105  
 M 1.5566421  
 grs. 552633  
 Jmc. 358.1



Not photographed: extra 1744 date on long edge.  
 neg. FO302 / 16X-107  
 NB. 1744 after  $\frac{1}{2}$  stamp!

A 282.57144  
 C 94.75447  
 M 1.8350874  
 grs. 6727.87  $\pm$  .37  
 gms. 435.95859



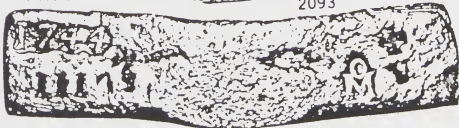
neg. FO-361A = V45  
Werner Amelinger coll 2/2/66

A 242.79276  
C 94.84095  
N 1.896885  
6774 } grs. 8  
6803.51 } grs. 2.24  
+ } grs. ~~44.83~~



reduced

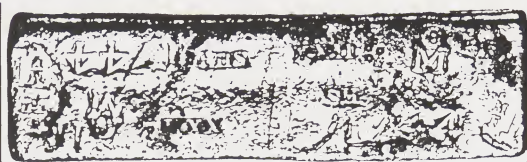
2093



1975 ANA : 2093. Withdrawn (? Buttrick's request)

"15 tray oz."  
grms ? about 466

neg. F03584



A 336.39814  
C 131.40032  
M 2.628115  
9ms 10.86875  
9ms 2.704.56  
2.69.3850

N 9320.27  
L.A. 4.1

BM 144  
Stand W/21/22: 507. F300



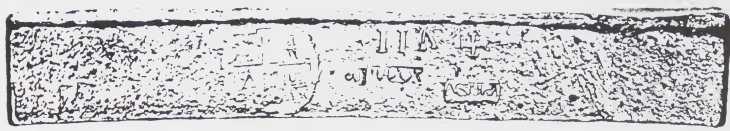
A 277.626  
C 108.44766  
M 2.1689532  
9ms 7700.13  
9ms 498.96



neg F.O. 118

Dr Joseph D. Higgins coll. 30 '53

gms. 13.380.50  
867.03  
gms.



[JF] MEX-115

date 1744 *see* 1712

gms. 1257.66  
813.0745



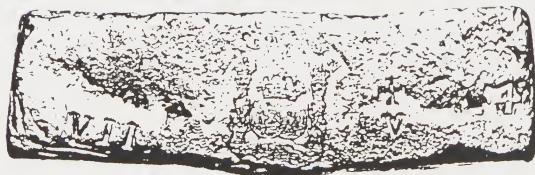


[JF] FO-114-

RON-101 Ron Romanello coll.

grs. M117.50

gms. 914.82

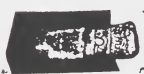


[JF] MEX-103

grs. 15389.30

gms. 997.21





~~A 594426~~  
~~22A76175~~  
~~118.995~~

ny. [JF] MEX-112 / FO-305

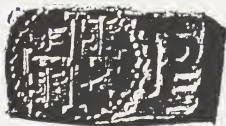
grs. 1828.70  $\pm$  .25  
 gms. 118.99775  $\pm$  .



Date 1746 on mallet edge

Bm photo 7.10730  
 Glendyng 86. / / - 1510

grs. 2,058.98  
 gms. 133.42



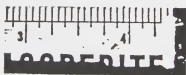
B&N photo 7-10730  
 Glendinning & Co. / / : 509

gms. 2148.03  
 gms. 139.39



B&N photo 7-10730  
 Glendinning & Co. / / : 512

gms. 2925.13  
 gms. 155.85



neg. [JF] MEX-114

grs. 2525.20 ± .15

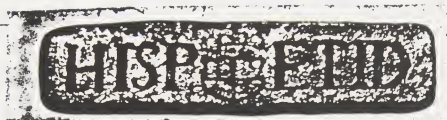
gms. 164.2787



neg MEX-113 [JF] (OVER)

grs. 2584.30 ± .20

gms. 167.4558



stick  
Neg. 4812 D  
Gibson: 271

Ashmun 94.0610  
Castellanos 36.7926  
Onzas 6.25

grs. 2608.90  
gms. 169.023



SI 73-11514  
11515  
Lilly Acc. No. 68-159-1419

A 74.627865  
C 36.96401  
M 0.739282

grs. 2624.55  
gms. 170.0638



key [JF] FO 114  
RON-100 Ron Romanella cl.

JF grs. 2967.25  
gms. 192.28



Bm Photo 7 10730  
glend. 11/23/72: 508 £580

1746 FL

A	107.41482	or
C	41.958915	or
M	0.839175	or
SRT	2979.22	
gr	193.05	or

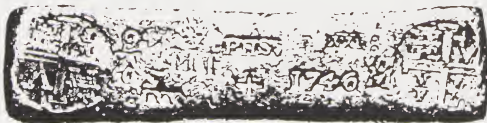


"Rapid Nitro analysis  
~ 989.99 Fine."

A 118.15129  
C 16.15285  
M 0.9130570

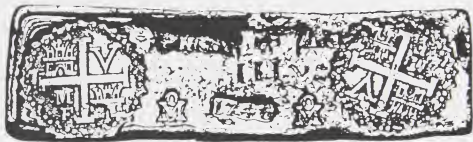
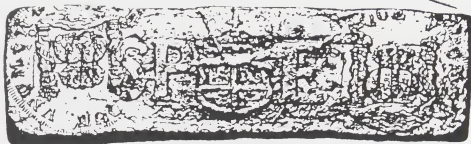
grs. 3277  
gms 212.346

JF Jr 1963 →  
Seahy 1962 → 'Mr. X' #  
2/69 Seahy → 'Mr. Y'  
Spink → 'Mr. Z.'  
→ Superior Police 1972  
+ Seahy C&MB 11/63: G 2484 = 7 Seahy 1969: F 1670



Wp. Fo 118  
Dr. Joseph Dollinger, coll. JD 'Q'

grs. 4908.55  
gms. 318.0356



[JF] MEX-111

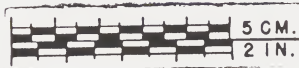
grs. 688.57 ± 27  
gms. 443.737



ny. [JF] MEX-110

A  
C 100.8157  
M

grs. 7657.62 ± 22  
gms. 463.8059



SI 73.11555  
 73.11556  
 Lilly Acc. No. 68-159-1414

gr. 975.02  
 gm. 63.18



[1770]  
 SI 73.11561  
 73.11562  
 Lilly Acc. No. 68-159-1415

Au 97.5  
 Ag 2.45  
 Cu -0  
 Ti 0.001  
 Co 0.1  
 Pb 0.001  
 BMFA Exn 75.300  
 gr. 1018.72  
 gm. 66.0118

cost



# "Lima Style" Devices



within border of --- elements repeated.

(a) about 10:00   on plaque

(b) border  repeated.  $\frac{M}{F}$  in field

(c) smaller. border   $\frac{M}{F}$  in field

(d) smaller. border   $\frac{M}{F}$  in field? (off flow)

(e)

---

date stamps

1741

1744

1746



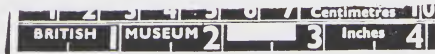
[1770]


reg. FO.118

Dr. Joseph Dollinger coll. JD 'T'

grs. 1157.20

smc 75.0454



Edge: part of 

[1770]

8m photo 7.10730

planning & Co. 11/14/72: 511 or 11/11/62: 858

grs. 1332.04

gms. 86.315



[1770]  
ny. [JF] MEX. 109

grs. 1119.70  
gms. 72.555<sup>11</sup>



n.d.  
SI 73-11537  
73-11538  
Lilly Acc. No. 68-159-1420

A 135.42558  
C 52.90062  
M 1.0580124  
grs. 3756.11  
gms. 243.392

# Punches, Logotypes, Etc.

---

HISP  ET ID

woodlocked into clay or sand for mold  
No inscutcheon.  
Retouched as needed.

① large:  large break

② large:  in S

③ large:  in S Hunt II

④ small:  in S

⑤ small; thick letters

⑥ as ④, but large

⑦ as ③ but long serif to 

~~Other stamps~~ O/M "mintmark" stamps



small O/M



# "Lima Style" Devices



within border of --- elements repeated.

(a) about 10:00   on plaque

(b) border  repeated.  $\frac{M}{F}$  in field

(c) smaller. border   $\frac{M}{F}$  in field

(d) smaller. border   $\frac{M}{F}$  in field? (off flm)

(e)

---

date stamps

1741

1744

1746

# "Columnario" ~~Stamps~~ Dies

(A)

type of 1770 8R. Imperial crown dexter  
~~Imperial crown~~ Royal crown sinister

Traces of 1770 date

In VTRAQUE VNUM, **AQ**

(X)

Arms. PHILIPPVS V DG H<sup>+</sup>ISPAN etc.

With inescutcheon. No denomination! Fm

Types of (A) and (X) are correct for all reigns (late ~~late~~ Felipe V, Fernando VI, Carlos III & IV), per A.J.S. McNickle, "Spanish Colonial Coins of North America, México Mint: Variations in the Coat-of-Arms as an Aid to Identification," Sociedad Numismática de México, 1962, pp 48-9.

# other stamps

② PHSV

④ PHS.V

⑧ ANATA

⑨ {XVI

⑩ XXI Top of Xs joined

⑪ XXII Top of XI joined

⑫ XXII top second X low

⑬ XXII 1st X low

⑭



PRELIMINARY REPORT  
CONCERNING A HOARD OF 18th CENTURY MEXICAN GOLD INGOTS

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1. THE CONTROVERSY

During the period 1953-56, a group of approximately 45 gold ingots (with a few silver ones), some complete, others surviving only as fragments, came to light from a source not known to have been connected with the numismatic world (Penn Smelting Company, Philadelphia). These ingots and demi-ingots bore a variety of stamps, notably HISP ET ID (= HISPANIARUM ET INDIARUM, i.e. "[gold] of the Spanish and Indian [royal domains]"), o/M purporting to be the mark of the Mexico City mint, and in some instances dates 1741, 1744 or 1746, but no others; the remainder bore no date at all. Many show a round bordured stamp showing a cantoned cross similar to that common to Peruvian gold coins, but purporting to indicate some connexion with the royal possession : quarterly, 1 and 4, a castle; 2, large V; 3, initials MF purporting to be initials of assayers at the Mexico City mint. Some, dated 1744 or 1746 or undated, also bore a round stamp resembling the die of the 1761-72 Pillar or Dos Mundos dollars, without the 8 (Reales) or assayers'

initials, and in each instance with only traces of a date--which has lately been deciphered as 1770.

Prior to 1965, when one of these ingots was pictured in the Encyclopedia Britannica as an unasked-for adjunct to this writer's NUMISMATICS--U.S.A. article, these ingots attracted little attention in the numismatic world except among a few specialists (though one had been illustrated in Robert I. Nesmith's book Dig for Pirate Treasure, N.Y., 1958). In 1966, the distributor of many of these ingots became embroiled in another controversy regarding unpublished pioneer gold material, which was likewise believed genuine by some, doubted by others, and attacked ferociously as fraudulent by Eric P. Newman--on what I believe to have been inadequate grounds. This circumstance could hardly have remained unknown to (or failed to influence) Prof. Theodore V. Buttrey, when the latter (following the distributor's offers of help in research, donations of photographs, access to records, etc.) condemned the whole lot of ingots as forgeries--without examining most of them physically or making any tests. Whatever the conclusions to be reached in the present paper, Buttrey's condemnation--based on inconsistencies which vanish in the present study, but which would never have posed any problem had he examined the pieces in detail, and based alike on a principle summarized as "consider the company they keep"--was made on grounds grossly insufficient to justify his conclusions.

The purpose of the present study is to reopen, and if possible to settle, the question of these ingots' genuineness or falsity, especially as in recent years this issue has been central to allegations of fraud made against their distributor, and tangential to denunciations of some who have attempted to sell them. Some ingots have been placed in auctions (notably the 1975 ANA Convention sale), only to be denounced before the lots were cried, with demands made to withdraw them--as though Buttrey's condemnation sufficed to prove their falsity beyond reasonable

doubt, even though it had not been published anywhere as the thorough research report this subject deserves. Perhaps worse, personality factors have been allowed to enter the issue so that outsiders are being asked to take sides on the basis of who is in favor, who against the ingots--often on the criterion of personal likes or dislikes: hardly consistent with scientific objectivity!

Because the entire group is linked by source, by fabric, and most of all by reappearance of the identical stamps on many of them, the conclusion instantly follows that to establish the falsity of any one ingot is to condemn them all, whereas to establish the genuineness of any one ingot is to dismiss the charge of falsity against the rest. ¶ There are several tangential exceptions, among them two apparent casts in the Smithsonian Institution from unidentified prototypes, and the so-called Tubac ingot, which is not germane to the present inquiry. But since the Tubac ingot was pictured in the same Encyclopedia Britanica illustrative plate, and the photograph came from the distributor of these Mexican ingots, that circumstance has been used as an excuse for condemning the latter, despite their completely different fabric, and again on the "look at the company they keep" principle. ¶ In the present study we must proceed as though that principle had not been formulated.

Clearly, the range of conclusions that can be established by this study is limited by the above considerations. There are only three possibilities:

1. The ingots could be determined to be forgeries--though on grounds far safer than those alleged by Buttrey. We shall devise criteria for any such conclusion.

2. The ingots could be determined to be possibly genuine, i.e. their characteristics are consistent with a hypothesis of genuineness, without inconsistency with what is known of 18th century Mexican mint

practice, or with common sense. Criteria are subjoined.

3. The ingots could be determined to be genuine. Criteria are subjoined, but the necessary tests have not yet been made.

(In the absence of these tests, the best conclusion we can reach is number 2 above.)

Which of these conclusions we reach further on in this study will depend on a methodology which seems to be taken for granted in all similar studies but which is rarely spelled out in detail; a methodology originally devised (so far as I know) for studies of ancient coins.

## 2. METHODOLOGY

As no documentation exists for anything similar to these ingots, nor are any of the stamps on any of them identical with anything else known in Mexican numismatics, clearly any decision about their authenticity must derive from investigation of the ingots' physical properties and from considerations of consistency relating to the stamps on them.

We begin with the most basic issues of all.

1. Manufacturing methods. Methods deduced about how these were made must be compared with known landmarks in the history of technology, and in particular with known local technological levels. Are these ingots a kind of product that the Mexico City mint could have made, or would they have required equipment not then locally <sup>available</sup> ~~available~~--or not yet invented?

2. Fabric of the stamps. Letter and numeral forms must be consistent with those of the period; here, with stylistic elements of Mexican mid 18th century numismatic items. Could the date stamps have been created in Mexico in the 1740's, or do they derive from later prototypes? Do the 1770 revalidation stamps (the columnario or "Dos Mundos" and crowned arms counterpart) consistent in layout with the 8 Reales of 1770? Are there any signs of tampering or other monkey business?

3. Temporal consistency. Are there any real anachronisms? Can any apparent ones be accounted for? Were any purportedly earlier elements impressed after later ones (here, e.g., 1744 or PHSV stamps after the 1770 revalidation stamps)?

4. Weight standards. Which local ones, if any, are applicable? Are weight standards even relevant to ingots? Which--and why or why not?

5. Metallic composition. Is stated fineness (if any) correct? Is it consistent with local standards then in use? Is it relevant to bullion storage ingots? Are the alloy constituents (including trace elements) consistent with local practice of the period? If not, why not?

6. Integration. Do the items fit in with local economics, history, and common practice of the period?

7. Provenance. Is a source determinable? Is it relevant? Provenance may be sufficient to prove (or disprove) genuineness, but it is not necessary.

These criteria are perfectly general and routine. Mutatis mutandis, they could apply to anything from Roman aes rude to South Indian silver, from remote antiquity to the present day. They are a means usable, in the absence of documentation, to arrive at a defensible decision about authenticity--about whether particular items were made when and where they are claimed to have been, rather than in recent times.

Applied to the Mexican ingots, these criteria are susceptible to the same kind of objective test as in any other series. But it needs to be stressed, here as elsewhere, that the identities of previous owners are not evidential in themselves as to genuineness or falsity. Honest people have been deceived; swindlers and thieves have been known to handle genuine pieces. Because of remarks by attackers of these ingots that they must be judged by "the company they keep", this point must be strongly emphasized. Without indulging in any invidious personality commen-

taries, one may still recall that another term for judging anything by "the company it keeps" is guilt by association, the negative version of "birds of a feather flock together." This decision procedure has no persuasive capacity in science, no force in statute law, and (in hostile contexts, as here) no purpose whatever except to create prejudice. Without intending blasphemy, one may adduce several infamous examples: on the one hand, political authorities in Roman Judaea argued against Jesus's credibility on the grounds that he was known to associate with tax-collectors, whores, and street people. On the other hand, some 1,920 years later, the unlamented Senator Joseph R. McCarthy used similar tactics to cast suspicion of treason on individuals who did not measure up to his concept of political orthodoxy, so that--whether or not criminal charges were filed against them--they would lose their credibility, their jobs, and often also their homes and families.

In the present context, we reiterate, the only effect of judging these ingots by "the company they keep" is to create prejudice, irrespective of any objective evidence. Prejudice is clearly antiscientific. Scientific objectivity demands that these items be evaluated as though no controversy had arisen about them. Only after such objective study can we begin to interpret the evidence as indicative of genuineness or falsity.

Moreover, the choice of tests must be appropriate to their purpose--a point too often forgotten. The criteria numbered 1 to 6 above should suffice to enable some decision, even if nothing is known as to the source of the items (criterion 7). This point sounds too obvious to need repetition (as in most methodological inquiries), but in practice it evidently has not been, as it has been repeatedly ignored. During over a quarter century of ~~my~~ experience as an authenticator of American coins, medals, tokens, and paper currency, I have repeatedly learned to

Breen--Mexican Ingot report : 7 :

my dismay that would-be provers (or disprovers) of a coin's authenticity often use tests which look and sound impressive, but which establish nothing relevant! Notorious instances include the x-ray results reported with any number of 1943 bronze cents, "1804" dollars, "1913" liberty head nickels, 1916 D dimes, and other coins frequently imitated by the ungodly. Where the question is of a mintmark's having been cemented onto a coin, x-rays are irrelevant, even as where the issue is whether a date has been altered, or the coin struck from false dies. In the context of the ingots herein under study, Buttrey's arguments are instances of irrelevant tests. Buttrey claimed that the columnario stamp (VTRAQUE VNUM, pillars and globes), with its crowned arms reverse, cannot be genuine, because the positioning of elements and the design of the crowns surmounting the pillars indicate a date between 1761 and 1772 whereas the ingots are dated 1744 or 1746. He must have assumed that the columnario stamp was purportedly impressed at the same time as the date stamps; whereas physical examination of almost all these ingots shows uniformly that the columnario stamp, when present, follows all other stamps, and moreover that it is actually dated 1770. A hypothesis consistent with genuineness would be that in 1770 these ingots were retrieved from previous holders and again claimed for the King, but somehow managed not to reach Spain, perhaps being among the contents of a ship bound for Spain but ending its voyage on some Caribbean reef or sea bottom. This consideration does not itself establish genuineness; but it shows that Buttrey's condemnation is on inadequate grounds, and that he did not examine the items closely enough to devise appropriate tests.

### 3. METROLOGICAL CONSIDERATIONS

The ingots do not specify their own weight in any manner yet decipherable, if at all. However, some of them do apparently specify their fineness, using roman numerals in logotypes such as XVII or XXII, with



or without one to three round dots affixed. We know that between 1729 and 1772, the legal fineness of Spanish and Mexican gold coins was 22 Quilates (= Carats), which corresponds neatly to XXII. A reasonable hypothesis is that the roman numerals in each instance allude to fineness in Quilates, and that the dots are to be taken as quarters: thus XXI• =  $21\frac{1}{4}$ , XXI: =  $21\frac{1}{2}$ , XXII:• =  $22\frac{3}{4}$ , and similarly.

Long after I came to this hypothetical conclusion, independent evidence showed up from a source I would not have thought to consult. John Philip Cozens Kent, Ph.D., F.S.A., Assistant Keeper of Coins and Medals at the British Museum, published a study "Gold Bars and Ingots from the Bermuda Treasure," in Numismatic Chronicle (6th Series), XVIII:9-12 (1958), representing his conclusions about a group of ingots datable to about 1600, discovered about 1955 (at least two years after the controversial ingots here under study!) in a wreck off Bermuda. This wreck had been sighted in 1950 by Edward Tucker and Robert Canton, but the contents were not retrieved until 1955. These ingots have four important features in common with the controversial Mexican ingots, of which one is closely relevant to metrology:

1. One end of a bar had been chopped off (plate II, 1), as with many of the controversial ingots.

2. Fragments of bars and irregular ingots were part of the treasure trove (plate II, 4, 5). Kent, p. 12, says of this circumstance that "the find represents the loot of a pirate or privateer, a view which would account for the mutilation of the bars." This makes sense in terms of the number of fragmentary ingots found among the controversial ones. Ingots made in recent decades for (fraudulent) numismatic purposes would hardly have been mutilated, and no less than 23 of the 45 survivors of this group are fragments!

3. Fineness is expressed in the same way. Examples from the Bermuda Treasure, cited by Kent, include the following: XVIII: =  $19\frac{1}{2}$  Quilates (specific gravity 16.4); XX = 20 Quilates (sp.gr. 16.2); XXI••• =  $21\frac{3}{4}$



Quilates (sp.gr. 17.8); XXII<sup>00</sup> = 22½ Quilates (sp.gr. 18.2). Because these Bermuda Treasure ingots were found some years after the controversial ingots here under study, and over five years before Kent published his interpretation, it cannot be argued that any alleged forger copied the style of the genuine Bermuda Treasure pieces: he would hardly have had access to them, let alone known the proper interpretation of their stamps. (We know of no other mid 18th century Mexican ingots which could have served as prototypes for forgers.) Inconsistent specific gravity in the Bermuda Treasure ingots is not an argument against their genuineness--only a clue to technological problems in assaying gold and silver, problems which had not been solved even 200 years later. You will recall that most of the California private coiners (1849-56), even those making the greatest effort to produce coins of honest weight and fineness, were unable to standardize their own products closely enough to ward off claims of debasement, even as in previous decades the same claims had been urged against Templeton Reid in Georgia and the Bechtlers in Rutherfordton, North Carolina. A tabulation in a later section of the present study will show that the Mexico City mint's own gold coins were markedly inconsistent in gold content (fineness), during the mid 18th century, to a degree which would--if duplicated in the United States mints--doubtless have resulted in the assayers' losing their jobs, if not going to prison!

4. The stamps with Spanish arms preceded all others in order of impressing into the ingots. Kent shows that these stamps should be regarded as "marks of royal ownership" (i.e. the Quinto a la Corona, the "King's Fifth," the 20% off the top of every sample of gold or silver mined in royal dominions) rather than "as stamps applied in coining establishments." He adds "Whatever the source of the bullion, it seems that it was claimed for the king by the application of his stamp before the quality was tested," citing E.J.Hamilton, American

Treasure and the Price Revolution in Spain, 1501-1650, pp. 14ff. In the controversial ingots, each one showing HISP ET ID with the oversimplified (quartered) crowned royal arms also shows that this HISP ET ID device preceded all others; the best explanation at hand is that it was carved into the particular mold in which each ingot was cast (there are many differing versions, consistent with an extremely large original output).

This brings us to the question of whether anything can be deduced from the weights of these ingots, compared with weight standards actually in use in mid 18th century Mexican mints. Obviously any such investigation can deal only with intact uncut ingots, not fragments. Developing the essential information has been surprisingly difficult, even with extraordinary polyglot library resources available to us---resources unlikely to have been available to any forger in 1953. An additional check on this is that if the purported forger used any one or two of these compendia of weights and measures, the fact would be readily apparent from whichever weight standard (in multiples and aliquot parts) would underlie the recorded weights of the ingots. .

(Readers for whom the following technical material may seem too much of a digression are invited to skip to the end of this section.)

We may as well begin with the earliest published sources, as these make a surprising point, which should have been apparent when Kent published his study, but which appears to be virtually unknown to Spanish or Mexican numismatics: Though the Spanish royal authorities attempted to standardize uniform weights for gold and silver throughout the domains, the attempt was never successful and the true standards were not certainly known even among bullion dealers. In this connexion you may remember that even the United States federal authorities were unable to ascertain <sup>them</sup> in 1786-90, when Alexander Hamilton was attempting to standardize the American silver dollar at par with the Spanish

Breen--Mexican Ingot report : 11 :

8 Reales so that the proper weight and fineness could be written into the bill to authorize a mint and a coinage system for this country. Hamilton, you will recall, began with a market ratio of 15:1 and an accepted practice among bullion dealers of valuing the Spanish dollar as equivalent to  $24\frac{3}{4}$  grains of fine gold, from which he deduced that the Spanish dollar would contain  $15 \times 24\frac{3}{4} = 371\frac{1}{4}$  grains pure silver, so that in turn our national version of the gold dollar should weigh 27 grains 11/12 fine, the silver dollar 405 grains 11/12 fine. (Cf. Carothers, Fractional Money, N.Y.: Wiley, London: Chapman & Hall, 1930, pp. 57-58.) Hamilton based his speculative figures on market approximations because the true standards were unavailable even through Spanish diplomatic sources. (As enacted <sup>April 1792</sup>, the silver dollar was to weigh 416 grains, 1485/1664 fine, a clumsy figure based on still other assays of Spanish dollars.) The trouble was over a century old then!

Lewes Roberts, "Merchant," in The Merchants Map of Commerce, second edition, London: Printed for R. Horn, and to be sold by G. Sanbridge, J. Martyn, (etc., etc.), ... M.DC.LXXI, p. 19, says that the Mexican Ryals of 8 are equivalent to Tower standard in fineness at a normal weight of 0 lb. 17 dwt. 12 gr. =  $4s4\frac{1}{2}d$  bullion equivalent to  $4s6\frac{1}{4}d$  "Intrinsic," compared to Sevil(le) Ryals of 8 at the same weight, fineness better than Tower standard by 1 dwt (= ?), =  $4s4\frac{3}{4}d$  bullion =  $4s6\frac{1}{2}d$  "Intrinsic." Following this remark is a reference to three samples of the Spanish pound weight standard of 16 onzas. Two from "Gibraltar" weighed out at 7,090 and 7,085 grains (English) troy, whereas the third, taken at "Vilalpondus" (= Villalpando, Zamora province), was lighter at only 7,035 grains (English) troy: an inconsistency which probably did not matter in local transactions, but which could have made trouble in any dealings with foreigners. But worse is to come.

Kelly, Cambiste Universel (1823), 2nd ed., vol. 1, pp. 114-5, identifies the "marc castillian" (the official Spanish weight standard) as

equivalent to marcs of Cologne and Burgos, and divided into 50 castellanos = 400 tomines = 4,800 granos. (The division into 8 onzas = 64 ochavas = 128 adarmes was then in use only for weighing silver.) Kelly equates the marc castillian to 3,550.5 grains anglais = 230.043 grams. This means either that he took the marca de Cartagena as his standard, or that he averaged several of the better figures from the 1818 report cited below. It also means that he used an old grams/grains conversion factor of 1 gram = 15.434071 grains; the modern conversion factor (1 gram = 15.432356 grains) gives the marc as = 230.068 grams.

In a footnote to the above, Kelly says that the earlier erroneous figure of 3,557 grains anglais = 1 marc castillian (a figure<sup>unthinkingly</sup>/quoted as recently as 1965!) derives from the work of Kruse, Nelkenbreker and Gerhart, who had equated the marc to 4,796 aas de Hollande = 3,557.6 grains anglais. In 1818, various local consuls in Spain furnished sample Spanish marcas (marcs) to Lord Castlereagh at the Tower Mint, London, and the quoted figure is based on the heaviest of these (cited from Doursther, infra, p. 249, s.v. Marc):

Marca de:	Furnished by:	Grains Anglais
Madrid	Consul-General Mead	3,550
Barcelona	Consul-General Baker	3,550.75
Cartagena	Consul Amalther	3,550.5
Málaga	Consul Laird	3,551
Cádiz	Consul Matthew	3,552.3
Alicante	Consul Athy	3,537
"Cologne" (= La Coruña)	Consul Allen	3,552
Valencia	Consul Waring	3,557.6

The point of citing these is that there was evidently considerable confusion as early as 1818 (and probably for generations earlier) among foreign traders dealing in various parts of Spain. Now if these incon-

sistencies of weights and measures existed in Spain itself, how much worse in Mexico and South American colonies, where knowledgeable royal officials would have been a transatlantic voyage away? .

Horace Doursther, Dictionnaire universel des poids et mesures anciens et modernes ... , 1840 (reprint, Amsterdam, Meridian, 1965), p. 298, cites three successive standards for the Pistole Quadruple, Once (= Onza), or 8 Escudos, each at 27.0602 grams:

Period	Fine	(Carats)	Grams Pure Gold
1730-72	917	(= 22)	24.8052
1772-86	896	(= 21½)	24.2414
1786--	875	(= 21)	23.6777

Doursther adds that the identical standards were in use in Mexico, to conform to Spanish usage. On p. 368 he equates the onza or onça = 1/8 Marca de Castile to 28.751 grams, and quotes Altes (in the unseen Traité de monnaies, poids et mesures, &c., Marseille, 1832) to the effect that the onza remained in use in Mexico after 1731, though no longer in Spain itself, as by the Decree of August 31, 1731 the marco castellano was divided instead into 50 Castellanos. As of 1830, the marco castellano was equated to 230.25 grams = 3,553.68 grains anglais. That implies a conversion factor of 1 gram = 15.434006 grains; its modern equivalent equates the marco to 230.276 grams and the ~~marco~~ onza ~~XXXXXXXXXX~~ to 27.063092 grams. These figures invite comparison with Martini's, below.

Angelo Martini, Manuale di Metrologia, Torino: Ermanno Loescher, 1883, p. 322, gives the Marco (as Spanish gold or silver weight) as = 4 Cuartos = 8 Onzas = 128 Adarmes, citing local inconsistent standards in their gram equivalents:

Marco de	Grams	
Alicante	237.328	
Barcelona	267.333	(= 128 "Arienzos", local name)
Madrid	230.046450	(before Jan. 1, 1859)
Castile	230.046450	(= 50 Castellanos)
Sevilla	230.046450	(p. 346)

Martini also gives the weight of the Onza de Oro (tariffed at 8½ to the Marco) as 27.064 grams, a figure constant since 1644--confirming Doursther, above. He also gives more precise figures for legal fineness of Spanish coins:

1644-1699, 22 Quilates (Carats) = 916½ Fine  
 1700-1729, 21 Quilates = 875 Fine  
 1729--May 29, 1772, again 22 Quilates  
 May 29, 1772-- , 21½ Quilates = 895⅝ Fine.

He also cites the Onza or Doblón de 16 Pesos in Mexico (p. 346) at 27.064 grams, but at finenesses differing from those in Spain:

Until 1772, 22 Quilates or "917" Fine  
 After May 29, 1772--1786, 21½ Quilates or "896" Fine  
 1786--1866 or later, 21 Quilates = 875 Fine.

At this period the gram was equated to 15.4323478<sup>74</sup> grains, which means that Martini's figures need no further correction; the modern 15.432356<sup>39</sup> grain figure produces no change in significant decimal places. Cf. [G.F.Hill, Keeper of Coins,] Grains and Grammes: a Table for the Use of Numismatists, London: Printed by Order of the Trustees of the British Museum, etc., [April], 1920, which uses the 15.4323478<sup>74</sup> figure, citing references from 1886.

Lodovico Eusebio, Compendio di Metrologia Universale, Torino 1899 (reprinted, Bologna, Forni Editore, n.d.), gives the Marco as 230.046

grams = 3,550.16 English grains--apparently an averaging of several of the above figures. Averaging of this kind is useless: it assumes that there was no true standard established by royal decree or statute law, which is manifestly contrary to fact.

Encyclopedia Britannica, 1911 edition, equates the marco to 230.07109 grams or 3,550.54 grains, but without citing primary sources.

A. Dieudonné, Poids Monétaires, p. 55, rounds off one of the earlier figures to equate the marco to 230.05 grams, but does not analyze the local standards.

Friedrich Freiherr von Schrötter, Wörterbuch der Münzkunde, Berlin and Leipzig: Verlag von Walter de Gruyter (etc.), 1930, s.v. Mark, p. 371, ~~gives~~<sup>weights</sup> the "spanische Mark" at 230.348 grams (= 3,554.81 grains), and the "portugiesische Mark" at 229.50 grams (= 3,541.73 grains), probably averaging any number of the above inconsistent earlier figures, but again citing no earlier references. Finenesses of Spanish and Mexican coins are as cited in Martini above. He does not mention the Onza. The "Dublone" (his spelling of Doblón) is tariffed at 27.064 grams, following Martini, without mentioning his work; but he has the honesty to mention that Latin American doubloons have greatly variable weights ('sehr verschiedenes Gewicht'), p. 164.

Bruno Kisch, Scales and Weights: A Historical Outline, New Haven and London: Yale University Press, 1965, p. 249, repeats many of the earlier errors and confusions, adding still others:

(s.v. Marca) "In Spain the Aragon marca =  $\frac{1}{2}$  pound (sic) = 8 onzas = 32 quartos (cuartos! WB) = 128 arienzes (sic) = 4,096 granos = 230 grams. The Castilian marca (Madrid) = 8 onças = 64 ochavas = 128 adarmes = 384 tomines; or 1 marca (fineness, not weight! WB) = 24 karat (Quilates! WB) = 96 gran gold or 12 dineros or 288 gran silver. ... In Barcelona the Catalanian (sic) marca = 272.67 gram. The marca of Valencia = 237.9 gm." These last two are not confirmed by other

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available references.

In another table, Kisch gives the following as though they were separate standards:

Madrid. Marco de Castile. 1 Marco = 8 onças = 64 ochavas = 128 adarmes = 384 taminos (sic) = 4,608 granos = 230.074 grams.

Valencia. 1 Marco = 8 onzas = 32 cuartos = 128 adarmes = 3,557.6 English grains = 230.5 grams. (Kisch's source here must have been the Valencia sample marca from Consul Waring, 1818, cited above following Doursther, in the footnote to Kelly.)

The relevant parts of all the foregoing are those relating to the Mexican gold coinage standards, 1729-72, equated with those of Madrid: 1 Marco Castellano = approx. 230.05 grams, divided into 8½ (not 8!) onzas, of 27.064 grams each, or (1729-72) into 50 castellanos of 4.6009 grams each. The onza is further subdivided into 128 adarmes (prior to 1731) of 1.7972 grams each, this measure remaining in use in Mexico in later years.

But with all the above confusion (which a forger probably would not have analyzed in even this much detail), it becomes necessary to check primary sources. Felipe Mateu y Llopis, Catalogo de los ponderales monetarios del Museo Arqueológico Nacional, Madrid 1934, has fortunately provided a study of these, pinpointing the confusion. On p. 120, Sr. Mateu cites for the reign of Felipe IV (1621-1665) the Mexican M. Doblón de 4 Escudos as 13.385 grams, 901 Fine, and the Doblón de 8 Escudos of the same period as 26.876 grams, 915 and 909 Fine, after Bonneville's assays. That would mean that the 4 Escudos pieces were slightly debased and the 8 Escudos lightweight, despite laws penalizing issue of substandard coins. It is extremely unlikely that Mateu would have published such inconsistent figures based on tests of a single sample coin of each denomination; more likely these were averages, which would be if anything worse than results of tests of a randomly



lightweight specimen. If we assume that these figures were in fact within +0.1 gram of those at which the coins were in practice intended to be issued, they mean that two inconsistent standards were then simultaneously in use at the Mexico City mint! This is a totally unexpected finding, and it might be doubted, but worse is to come. At 8½ Doblonos (or 17 4-Escudos pieces) to the marco, the 8 Escudos must have been struck to a standard of 228.446 grams to the marco, and the 4 Escudos to a still lighter standard, 227.545 grams to the marco--both figures in great contrast to the range earlier cited (230.046 to 237.9).

Coming closer in time to when the controversial ingots were supposed to have been made (the second reign of Felipe V, 1724-46), Mateu (p. 129) quotes the Royal Edict of August 31, 1731, titled Declaración del marco de Castilla, ..., published in Madrid, "en la emprenta de Juan Aritzia, calle de Alcalá," to the effect that henceforth gold would be coined at 22 Quilates fineness, and that the marco castellano was to be reckoned at 50 ~~ca~~stellanos, this division supplanting all earlier ones. After May 26, 1731 (Mateu, p. 132), only the marco castellano was to be in use--no longer the other local marcas (by implication) nor the Italian marca.\* The effect of this legislation was that thereafter Spanish (and, by implication, Mexican) gold would be coined to a somewhat lighter standard than formerly; but exactly what this standard was remained open to question, and the question could only be answered by checking actual coin standard weights in the Museo Arqueológico Nacional.

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\* Or rather, any of them! Kisch cites the marca of Milano, Ferrara, and Bergamo as 235 grams; that of Piemonte as 246 grams; and that of Venezia as 238.5 grams. In each instance, the marca was divided into 8 oncie = 32 quarti = 192 denari = 1,152 carati = 4,608 grani, though some of these intermediate weights were not in use in some locales.

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And here is the bombshell.

There are three of these weights, numbered as in Mateu's catalogue:

62. For the 8 Escudos of Felipe V, before 1731. Truncated pyramid, 26.85 grams. (This is a good match for the 26.876 grams cited above for the 8 Escudos of Felipe IV, apparently the old standard being continued. The marco here implied is 228.225 grams.)

63. For the 8 Escudos of Felipe V, after 1731. Round, marked Vooo, 26.7 grams! (V = 5; o = 1. This contrasts with the 27.06+ grams cited by Doursther, Martini, and others, and implied by Eusebio. It implies a lightweight marco of 226.95 grams, and must have caused confusion on the rare occasions when it was used for comparison with copy weights. Who would ever have thought to question the accuracy of a prototype coin weight in a mint!?)

64. For the 4 Escudos of Felipe V, after 1731. Round, marked oooo, 13.5 grams. (oooo = 4, as with preceding marking. This is comparable to the nominal standard of 13.53 grams = half of 27.06. It implies a marco of 229.5 grams. It is probably the reason more Mexican gold coins were not rejected as lightweight.)

No marco or castellano weights of this period are among those described by Mateu. The older divisions of the marco into 8 onzas, 64 ochavas, 384 tomines or 4,608 granos probably remained in popular practice, as by 1781 they were once again official, according to Mateu. These figures, official in Spain, would have been official also in Mexico (Doursther, p. 324). I tend to trust Martini's figures (p. 325), as cited above, indicating that the onza remained constant at 27.064 grams since 1644, corresponding to a marco of 230.044 grams. (Why Martin rather than Kisch? Because Kisch, as noted above, picked up old errors without recognizing them as such.)

We may accordingly assume that Spanish and Mexican coins were struck to the single ideal standard of 27.06 grams per onza of 8 Escudos, but

that in practice they varied even before the artists in clipping or shaving got to them. This is the standard to which the controversial ingots would have been expected to conform, if any. It is not at all clear why mere bullion storage ingots, intended for shipment to Spain and recoinage, would have been standardized at all; would they not have been, more logically, made of the raw alloy as received at the mint, in any convenient size and weight suitable for transport?

Because the coin weights at the Mexico City mint represented two inconsistent standards during this period, exact knowledge of weights of these ingots is of no help in deciding if they were made to any known weight standard. However, we can be certain that if these ingots' weights are aliquot parts or multiples of any of the deviant local standards, as published, their maker would have had those standards in mind rather than either of the Mexico City standards--assuming that he knew of the latter; and this would be evidence of falsity.

Comparison of the weights of the couple of dozen complete ingots, using a calculator to reduce these to integral and fractional marcos, castellanos, adarmes, onzas and escudos, to all the dozen-odd varying standards cited above, yielded no consistent pattern, no attempt to follow any of the published weight standards. This destroys a hypothesis briefly entertained (and published in the Gibson sale, lot 271) that a convenient shipment weight was  $6\frac{1}{4}$  Onzas = 50 Escudos; if any consistent practice had been intended, weights of the other ingots would have more often approximated integral numbers of Onzas or Escudos. It also absolutely rules out a hypothesis hopefully entertained by some individuals connected with these ingots, that some of them might have been acceptable somewhere as money. Beyond doubt, if such ingots were genuine, they would have been taken intrade at values according to their weight and estimated fineness--but only at considerable risk, because their stamps would have told any bullion dealer that they were property

of the king of Spain, and dangerous to handle except by immediate removal to the melting pots, even as with other gold bullion recovered from pirates or privateers.

Weight standards, therefore, do not prove that these ingots are genuine, nor do they suggest forgery. We must try further.

#### 4. METALLIC COMPOSITION

What then of fineness, as stated on the ingots? The problem is that on the one hand some of them show no indication of fineness at all, and others state their own fineness down to the quarter of a Quilate. But there is no reason to think such statements would have been more than approximate, given the technology of the day, and given the purpose of these ingots. If they were genuine, they were intended only for bullion storage pending receipt by royal authorities in Spain, and there would have been no reason to standardize successive melts.

Even the undeciphered II, III, II7, III7 and similar markings (with or without Maltese crosses) provide no answer here: they are found both on ingots having the usual fineness markings (XXII:., XXI., etc.) and on those lacking them. No pattern has yet emerged to account for them; possibly they were inventory control stamps of some kind.

On the other hand, no opportunity has yet appeared, to do extensive tests of metallic composition, either to see if the ingots' maker(s) estimated accurately, or if the fineness stamps were randomly applied (as might have been done by a forger). Not that this would be conclusive evidence either: though the Mexico City mint's assayers might have been as accurate in their estimates of fineness on these ingots as on the coins they helped to manufacture, a modern forger could have been equally accurate.

What would be far more relevant is metallic content in the sense of trace elements. One would expect, to begin with, that the ingots

--if genuine, and if intended for the bullion storage purpose cited-- would vary in gold and silver content according to the characteristics of local ore samples from which they were melted down and cast; they would contain no added copper (most western North American gold ores contain natural silver alloy but no copper, and the King's Fifth covered ores locally mined, not coins seized from the ungodly); they would differ markedly in trace element profiles from modern coins. Further, one would expect differences between the 1741's and the 1746's, and probably from undated pieces, as old mines were worked out and other veins opened.

As it happens, a few such tests have been done, and results are illuminating, though hardly conclusive (after all, not nearly enough ingots have been made available for testing, to date!). On July 29, 1975, a letter from W.J. Young, Head, Research Laboratory, Boston Museum of Fine Arts, addressed to Harvey G. Stack, dealt with this very problem. From it we quote, in tabular form, detailed results of several relevant analyses, done by energy-dispersive X-ray analyzer (a nondestructive testing procedure):

SOURCE	EXAM NO.	DATE	DENOM.	Au%	Ag%	Cu%	Ca%	Fe%	Pb%	Ti%
Stack's	75.289	1925	50 Pesos	90.6	0.2	9.2	0.01	0.001	0.001	NT
"	75.290	1947	50 Pesos	91.0	0.4	8.6	0.001	0.001	0.001	NT
SI/Lilly	75.300	n.d.	Ingot 68.159.1415 66.0061 gms.	97.5	2.45	0	0.1	NT	0.001	0.001
SI/Lilly	75.301	1744	Ingot 68.159.1422 266.735 gms.	98.6	1.4	0	0.01	NT	0.001	0.01
SI	75.297	1743	o/M 8 Escudos	88.0	10.45	1.5	0.01	0.001	NT	NT
SI	75.298	1744	o/M 8 Escudos	91.2	7.3	1.5	0.001	0.001	NT	NT
SI	75.299	1745	o/M 8 Escudos	89.5	8.4	2.1	0.001	0.001	NT	NT

SI = Smithsonian Institution. NT = Not tested. Numbers after "Ingot" are accession numbers from the Josiah Lilly bequest. o/M = México mint. Standard chemical abbreviations are used for the elements. We have not been informed of reasons for testing only the ingots for titanium content, or why the ingots were not tested for iron content.

Mr. Young's letter drew the conclusion that "the earlier ingots and coins were alloyed with silver while the more modern ones were alloyed with copper." Even with the scanty sample provided, we can go farther than that.

The 50 Pesos coins ("centenarios") legally weigh  $41\frac{2}{3}$  grams, of which 37.5 grams (= 90%) are fine gold, the remainder copper alloy. It is uncertain if the tiny quantity of silver was intentionally added, or simply remained in the native alloy among other trace elements. We suspect the latter; otherwise the later centenarios would most likely have stated their silver content in addition to their gold content.

On the other hand, the 1743-45 8 Escudos coins seem to have represented a ternary alloy:

gold  $11/12 = 916\frac{2}{3}$  Fine = 91.67%

silver  $5/72 = 6.94\%$

copper  $1/72 = 1.39\%$

This is not far from that found in other European coins of the period, nor from that actually written in to United States law, Jan. 18, 1837, prescribing for U.S. gold coins proportions of .900 gold, ~~MM~~ not over .050 silver, not less than .050 copper. Ternary alloys have long been recognized in metallurgy as having superior hardness and resistance to abrasion, compared to pure gold, pure silver, pure copper, or to ordinary binary (gold/silver or gold/copper) alloys.

A certain proportion of silver naturally occurs in native gold samples from throughout the North American continent (less silver than in Greek elektron/electrum), especially compared with the African gold which had been a major source of U.S. coinage bullion as late as the 1830's (even after gold was discovered in the Carolinas and in Cherokee lands in Georgia). California gold normally ranges from about .878 to .892 in fineness, the remainder silver but no copper; Colorado gold ranges from about .857 to .970, again with silver but no copper; and similarly for other North-

American ore samples. (These figures derive from a wide variety of sources, ranging from newspapers of the Gold Rush days to Bancroft's and other histories, to Eckfeldt & Dubois and various mint reports.) We have, unfortunately, no corresponding figures for Mexican gold. If these ingots are in fact genuine, one would expect their metallic composition to match fairly closely that of such ore samples, should any become available for examination. Moreover, the fineness of the gold in the two ingots tested is far and away in excess of that found in any of the coins. That is exactly as it should be, if the <sup>bullion</sup> ~~was~~ ~~would~~ ~~be~~ ~~the~~ had been subjected to cupellation before remelting to form ingots. We have no reason to expect that in a hasty operation, intended for immediate shipment to the king, local assayers would have gone through <sup>further assaying/refining</sup> the ~~minting~~ process of quartation; that would normally become the task of the Madrid mint, or whatever branch obtained the gold from royal authorities for domestic coinage. Quartation (parting) had as its primary purpose removal of silver alloy from the gold; cupellation left <sup>in</sup> the silver while removing base metals and other contaminants.

How is this relevant to genuineness? A forger might have obtained access to eight or nine pounds of gold bullion, from various sources, melted them (perhaps adding some silver to simulate west coast native gold), and poured the bullion into molds; he might or might not have cupelled the mixture first to remove copper, lead, tin, iron, etc.

In which case, the precise fineness figures are no longer evidence of either genuineness or falsity--depending on just how careful the forger had been. Had the ~~mint~~ ingots in the Boston Museum of Fine Arts tests been obtained by melting down almost any modern gold coins (without cupellation), their copper content would have been immediately apparent and a source of automatic suspicion. It would be of interest to make similar tests on as many other ingots of this group as possible. If all come somewhere near their stated fineness (if any), all are free of

copper, and represent a number of varying batches of ore, this combination of findings would be consistent with a hypothesis of genuineness. If ingots of different dates prove to have come from the identical batch of gold bullion, that would be grounds for suspicion of falsity. If ingots prove to contain significant added copper, and/or randomly show great variance from their stated fineness if any, that is even stronger reason for suspicion.

At present, the evidence of metallic composition is incomplete and inconclusive. Results of the scanty tests made to date are consistent with a hypothesis of genuineness; or, more precisely, we cannot rule out genuineness on the basis of available evidence of metallic composition.

There are, however, further areas of investigation remaining even in metallic composition, and these may provide more definite answers.

##### 5. LETTERING, LOGOTYPES, DIES

One of Prof. Buttrey's arguments against the possibility of genuineness of these ingots is the nature of the columnario or Dos Mundos die and its Crowned Arms reverse; another is what he describes as the confusion of different punches used on the ingots. Unfortunately no indisputably genuine Mexican ingots of the 18th century survive for comparison. Although Buttrey's objections are readily disposed of, objective study of these ingots necessarily deals with issues of style and temporal consistency. To sustain a hypothesis of falsity, even a single true anachronism is sufficient. Finding a profusion of apparent anachronisms, or any that require large numbers of ad hoc hypotheses to explain away, will also be grounds for suspicion.

Let us first deal with the columnario and Crowned Arms ~~columnario~~ dies. What we call obverse is the columnario or Dos Mundos, identical in all respects to the normal pillar dollar design, in the 1754-72 version with



different crowns atop the two pillars. There is only a single die of this design, and it shows a small die break (?) at right side of A in VTRAQUE. This does not advance, nor is any progressive deterioration noticeable on any impressions of this die among the twenty ingots and fragments (1744: 8; 1746: 7; no date stamp, 5) on which it has been seen to date.

I have physically examined most of these ingots, and the date--which is always partly or wholly off flan--can be unequivocally read as 1770. Tops of the two 7's are the same on the few ingots on which it can be read at all (available photographs do not show this detail--physical examination was necessary); and the final digit is definitely a zero. This disposes of Buttrey's argument; he had been assuming that the columnario stamp must have been <sup>dated</sup> ~~XXXXXX~~ in the 1740's, when the ingots proclaimed themselves to have been made. A hypothesis of genuineness requires the ad hoc assumption that the columnario stamp was used in or after 1770 to revalidate older ingots and demi-ingots and fragments, recovered from a pirate's or privateer's hoard, certifying them again as property of the King of Spain, before loading them aboard whichever Spanish ship was to meet its appointment with another of those Caribbean hurricanes. This would not be at all unlikely; and a consequence is that one would expect the 1770 Dos Mundos ~~mx~~ impressions to follow any others, especially any date stamps or any PHSV stamps. Any evidence that the 1770 die was impressed before earlier stamps would suffice to condemn the entire batch of ingots at once. At present there is no unequivocal instance of any such anachronism, though three ingots must be reexamined and preferably tested with x-ray diffractometry to verify that the earlier (dated or PHSV) stamps had actually been impressed some years before the 1770's.

Similarly with the Crowned Arms die. Buttrey argued that its layout

--in which the cross atop the crown extends between bases of HI, rather than IS as formerly--points to a date between 1761 and 1772. He might have strengthened his argument by pointing out that during the '1740's, the assayers' initials at the Mexico City mint were uniformly MF, whereas on this die they are FM, as found on Mexico (o/M) 8 Reales dated between 1770 and 1772 (Harris 226-228). But both these circumstances are consistent with this Crowned Arms die having been made as a companion to the Dos Mundos dated 1770; the anachronism has vanished. There is again only a single die of this design ; it lacks the large 8 found on the sinister side of the arms in regular 8 Reales coins, which is as it should be--there is no denomination on these ingots. I have examined most of the ten ingots on which it is found (1744: 3; 1746: 2; no date stamp, 5) and there is no progressive deterioration--nor to date any anachronistic superimposition of an earlier date stamp or a PHSV stamp.

We can only conjecture why the date 1770 was deliberately concealed. My tentative guess is that if the ingots are genuine, this Dos Mundos die would have been used in winter 1770 and into 1771 for revalidating ingots and fragments recovered from a privateer's or pirate's hoard. However, this consideration does not prove anything; it merely sustains the possibility of genuineness. Further examination is necessary.

We now reach the larger group of ingots which show no trace of either the columnario or Crowned Arms stamps. Most of these show HISP ET ID separated by crude quartered crowned arms, all in relief. As these ingots were cast (poured into molds), the question is how the HISP ET ID got there; my tentative reconstruction is that these letters were obtained in relief on a wood block by hand cutting, and that one wood block could be used for stamping into the bottom of a mold--or the top-piece--or into several similar molds, each of which would there-

after bear lettering identically laid out, but which would crumble or otherwise deteriorate differently according to the individual mold.

There is a wide variety of individual HISP ET ID woodblocks. This is as one would expect, consistent with the impression that these ingots are a tiny remnant of an enormous operation. A forger could have reasoned similarly, but would he have gone to the trouble of making twenty-odd woodblocked molds? What is more important than the exact number of molds, however, is chronological consistency--to begin with, the HISP ET ID must have preceded any other stamped impressions (which is in fact the case on all ingots and fragments on which any of the letters can be read); and even a single anachronism of any other kind would suffice to condemn the whole group as false. What would constitute an anachronism? For one thing, presence of a later state of a mold on an earlier dated ingot, compared with an earlier state on a later dated ingot. It is not automatically to be expected that any single mold would have been used in two different years, however.

Nevertheless, surprisingly, there are two instances of exactly that, and they require separate study.

The most spectacular instance is the large HISP ET ID with a heavy crack through space below HI, bases of IS, up through SP, top of arms, sinister base of crown, top of E and space above T. This is found on five ingots (one only a fragment) dated 1744, and one dated 1746, in varying states. Earlier ones show both ends of the crack (below HI and above T) thin and threadlike, the remainder heavier; later ones show both ends much heavier, as raised ridges from 1.5 mm to 4 mm thick below HI, about 1.5 mm thick between P and chief point of arms, and heavy enough above ET to raise the area above that to a higher plane. If any 1744 instance is from a later state than the solitary 1746, falsity is automatically proved. However, the 1746 (MEX-111, 443.737

grams) is obviously a late state, but both ends of the crack are obscured by the Dos Mundos 1770 die, forever rendering it impossible to tell if they are in fact from a later state than the last of the 1744's with this same HISP ET ID (Glendining 11/72:505 and MEX-103). The question therefore remains moot.

The other instance is a HISP ET ID design found on ingots dated 1741, 1744 and 1746, normal on the earlier ones, increasingly crumbled on later ones. This particular design (lower serif of S horizontal, T asymmetrical, base of second I prolonged to left) shows the most deteriorated states on the 1746 (JD-Q); the 1744 (FO-360B) is next to latest; the 1741's least so (FO-360A, 359A, 359B, JD-R). In this instance, closer study shows that the 1741's were made from several minutely differing molds from the same woodblock. Again, there is no anachronism, but if the marks looking like those imparted by a rusty die (plainest at area between arms and E, and at left edge of upright of T), shared by the 1744 and the 1746, actually indicate one and the same mold, the question arises of why this mold would have been in use during two nonadjacent years.

Which brings us to the possible chronological sequence of date stamps and PHSV (= Philippus V) stamps. If it should prove that either a date stamp (1741, 1744 or 1746) or a PHSV stamp had been applied after a 1770 Dos Mundos stamp or its Crowned Arms reverse, falsity is automatically established. ~~On most ingots, there is no~~ On most ingots, there is no overlap between either ~~of~~ the PHSV stamps or date stamps and the Dos Mundos or the Crowned Arms.

To date there are two possible exceptions, both absolutely crucial, and reexamination of these ingots is a necessary step on which the proof of falsity or the possibility of genuineness depends. These ingots are both dated 1746. In one, designated Mex-114, the PHSV stamp overlaps the upper edge of a (1770) DOS MUNDOS. In the other, a date stamp

overlaps the upper edge of a Dos Mundos. From the photographs, it is impossible to tell which came first, but conceivably this could be decided on microscopic examination. I can draw no more definite conclusion without the latter.

There is, however, another major group of dies which may provide evidence in either direction. These are the Cross Potent dies (canted, quarterly 1 and 3, a castle; 2, large V; 4, initials MF). They are peculiar to the present hoard of ingots; nothing quite like them has been reported on anything else, and it must be said at once that they have features which suggest possible genuineness and features which are frankly puzzling. There are three types:

Type X: Small MF in field; bordure of single pellets alternating with dashes, irregularly spaced. Found on ingots dated 1741, 1744 and 1746. There may be more than one die of this type.

Type Y: Medium MF on rectangular plaque; bordure of dashes alternating with paired pellets. Found on ingots dated 1741 and 1744 only. There may be more than one die of this type.

Type Z: Large MF in field; bordure of paired larger pellets alternating with irregular serifed bars which slant out into fields and which show some curvature on edges. This die is larger than X or Y and shows a deeply indented edge, outside the bordure. Found on ingots dated 1741 (JD-R), 1744 (Glendining 11/72:507) and 1746.

The castle presumably represents the Kingdom of Spain (originally, that of Castile); it occurs by itself as an obverse device on Mexican cuartillas ( $\frac{1}{4}$  Reales) as early as 1796 (Krause-Mishler 62). The V has been taken by some to refer to Felipe V, which would require a 1746 terminus; but it may instead mean the Quinto a la Corona, V being the Roman numeral for 5 (th Part).

On which interpretation of the V is adopted will depend the meanings

Type X is found on the following:

1741--QS 3/72:1548; JD-C; Glendining 11/72:503; MEX-105;

WA4 = FO-359A; WA3 = FO-359B.

1744--Glendining 11/72:505-6; Lilly 68.159.1418; MEX-107 and 1 15;  
FO-358A; JD-S; RON-101. The last two also bear ~~anmm~~ a Type Y die.

1746--Seaby 1963, 69; JD-Q; Glendining 11/72:508; Gibson:271;  
RON-100; MEX-110.

Type Y is found on ingots dated 1741 and 1744 only:

1741--Gibson:270; FO-360A.

1744--Glendining 11/72:504; Lilly 68.159.1421; QS 73:242; ~~MM~~ 1975  
ANA:2093; FO-360B; MEX-103, 108; WAS = FO-361A; JD-S; RON-101. The last  
two also bear a Type X die.

Type Z is found on the following:

1741--JD-R

1744--Glendining 11/72:507

1746--MEX-111, 112, 113, 114; Glendining 11/72:509, 510, 512.

The above finding is equivocal: consistent with either a hypothesis of falsity (all three types of dies simultaneously present in a forger's atelier) or of genuineness (three different sizes of dies intended for different sizes of ingots, made simultaneously (or nearly so) and held for intermittent use over years to come).

Let us consider the instances in which a Cross Potent die is found on the same ingot with a Dos Mundos or a Crowned Arms die. There are ten of these, dated 1744 and 1746, involving dies of all three types, in which a Cross Potent is found directly opposite a Dos Mundos. If the Cross Potent came first, the Dos Mundos impression--assuming it was intense enough--would have flattened the latter; or vice versa. If both are equally strong (or equally weak), this may be undecidable; either a press was used to stamp both simultaneously (as with coins--

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rather less likely, we suspect, on ingots), or neither impression was strong enough to efface the other. The instances:

Type X opposite Dos Mundos--Lilly 68.159.1418.

Type Y opposite Dos Mundos--QS 73:242, MEX 103, MEX 108.

Type Z opposite Dos Mundos--1744: Glendining 11/72:507;  
1746: MEX-111, 113, 114; Glendining 11/72:509, 512.

Flattening of the Dos Mundos ~~in~~ by a Cross Potent die would be evidence that the latter came afterwards; there is, however, no instance of this. Instances where the Dos Mundos and the Cross Potent may have been struck opposite each other in a press (a condition which sounds suspicious) are equivocal. We would like to examine QS73:242 and MEX-103 with this in mind, among others. We suspect that some procedure like x-ray diffractometry might be sufficient to determine how much difference in time had elapsed between the earlier and the later stamps.

There are several instances where a date stamp overlaps a Cross Potent, which may provide additional clues. If it could be found that on at least one ingot a date followed a Cross Potent while in others the dates preceded them, that would either provide a more accurate terminus for the Cross Potent stamp or possibly an anachronism.

On JD-R ~~in~~ it is uncertain if the date or the <sup>Type Z</sup> Cross Potent came first. (1741) This will have to be reexamined in view of the following.

In 1744 there are several instances in which the order is uncertain (MEX-108 and Glendining 11/72:505); and two in which it looks as though the date 1744 followed the Cross Potent, namely MEX-107 and 115. Did ~~Type X come first?~~ X come first?

In 1746 there is a single instance: Glendining 11/72:508, in which the date seems to have followed a Type X Cross Potent.

On FO-361A, ~~a~~ a date stamp 1744 appears to have preceded an ANATA

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stamp; and on MEX-111, an ANATA stamp (ANATA = "Annual Income", evidently in reference to the King's Fifth) seems to have preceded the Cross Potent on a 1746 ingot. That would indicate a 1746 date (for late 1744, at earliest) for the ANATA stamp. So far, so good, no anachronism.

There are, however, enough instances where the actual temporal order (which/<sup>overlapping</sup>stamp was impressed first) is doubtful to require that the whole question be reopened, partly by physical examination under microscope, partly by x-ray diffractometry.

It is thus necessary to suspend any further <sup>discussion</sup>~~examination~~ of these ingots until the necessary examination has been done.



## DISCUSSION

Buttrey's condemnation of these ingots rests on a couple of misapprehensions, having to do with apparent inconsistencies. He could not understand the presence of the columnario stamps on pieces dated in the 1740's, especially since the forms of these dies suggested a later period; nor could he understand the presence of a quasi Peruvian device (with the MF and V). These difficulties are immediately resolved on close study of the ingots (rather than, as Buttrey relied on, study of photographic halftones).

The first thing to come to attention is that in every instance where the columnario stamps A and X appear, they are stamped over any other devices whatever; they were, in other words, affixed ~~long~~ later than ~~any~~ <sup>very</sup> thing else. In addition, note that the Dos Mundos side-which in a few instances shows traces of a 1770 date--shows the same crown forms as are on the regular 8 Reales coins of that period; in fact, it was the crown forms and the division of legends (cross below space between HI ~~1761~~ <sup>1761</sup>), as well as the use of inescutcheon, which finally gave me the clue that the traces of date meant 1770. These columnario ~~stamps~~ <sup>dies</sup> also show no denomination, which is also appropriate; it would have been extremely suspicious if the normal 8 had been present.

The following hypothesis fits the requirements. Suppose that the 1744-dated ~~ingots~~ <sup>1746-1750</sup> and fragments had been stolen from their rightful owners, and in ~~1770~~ <sup>1770</sup> recovered by royal authorities: what more natural than to identify them with a revalidation stamp ~~at~~ <sup>at</sup> that time? The mutilated condition of some 17 of these various ingots shows, to my eyes at least, that they were never considered as numismatic material; merely as so much bullion in a form more compact than granules or nuggets.

Another feature of the group of ingots demands attention. This is the great profusion of different stamps of the same general type and apparent purpose: seven woodblocks reading HISP ET ID, eight o/M "mintmark" stamps, etc., and in no instance are two of the same type used on a single ingot. By all reasonable criteria, this kind of profusion of punches or dies points to a very large scale operation; it suggests that the ingots currently known were in fact remnants of a much larger group. Whether or not we credit the story told by Ford that this source rescued them from someone who was in process of melting them down (because they had been illegally obtained and could not be legally held?), the profusion of different stamps, dies, logotypes, etc., is consistent with the ingots' being survivors of an enormous output rather than the entirety of a single forger's production.

Even in the 1950's, the manufacture of this kind of ironmongery--quite aside from the maker's familiarity with 18th century lettering forms--posed formidable problems both in technology and cost. Personal examination of most of these ingots (I have not seen <sup>all</sup> ~~any~~ of them, but the die-linkage and punch-linkage evidence keeps them in the same group with those I have seen) leaves me no alternative to the conclusion that, unlike some obvious forgeries cited by Buttrey for "guilt by association," <sup>ia</sup> these gold ingots were cast, with the various dies and stamps being hammered into them; and these dies and stamps must have been made by hand, a process that in the 1950's would have been prohibitive in time and cost compared with the prices at which Ford's source sold them.

It seems paradoxical, too, that no other use was made of the 1770 ~~Columnario~~ <sup>dies</sup> stamps, e.g. to make gem prooflike strikings of Pillar Dollars in various metals, with or without the normal 8 being added.

# WEIGHT STANDARDS IN USE IN SPAIN AND MEXICO

One feature which has struck most commentators on this subject ever since the 1600's is the ~~the~~ variability of these in practice. I will cite the available sources and let these speak for themselves, giving equivalents in grams, evaluating the confusion afterwards.

Lewes Roberts, Merchant, ~~in~~ "The Merchants Map of Commerce," 2nd ed., London: ~~Printed~~ for R. Horn, and to be sold by G. Sanbridge, J. Martyn, (etc., etc.)... M.DC.LXXI, p. 19, says that the Mexican Ryals of 8 are equivalent to Tower standard in fineness at a normal weight of 0 lb. 17 dwt. 12 gr. = 4s4½d bullion equivalent to 4s6½d "Intrinsick," compared to Sevil(le) Ryals of 8 at the same weight, fineness better than Tower standard by 1 dwt (=?) , = 4s4 3/4d bullion = 4s6½d Intrinsick. ~~Following~~ this remark is a reference to three samples of the Spanish pound weight standard of 16 onzas: two from Gibraltar (sic) weighed out at 7,090 and 7,085 grains (English) troy, but the third, ~~taken~~ at Vilalpondus, turned out to be only 7,035 grains ~~in~~ (E glsih) troy. Respectively, these correspond to ENGLISH

7090 gr	453.59243 gms. (using 15.432356 grain to the gram)
---------	--

7085 gr = 459.10034

7090            459.42434

7035            455.86040

Kelly, ~~in~~ Cambiste Universel (1823), 2nd ed., v.2, p. 324:

Doblon, before 1773. 909 Fine, wt. 24.527 grams.

--Ib., vol. 1, p. 114-5. Identifies the marc castillian with the marcs of Cologne and Burgos, but divided the former into 50 castellanos = 400 tomines = 4,800 granos, ~~and~~ and specifies that the division of the marc into 8 onzas = 64 ochavas = 128 adarmes was then in use only for weighing silver. He identifies the marc castillian ~~with~~ as = 3550.5 grains anglais = 230.043 grams (using an older conversion factor of

the gram as = 15.434071). The modern conversion factor I use makes his 3550.5 grains for the marc castillian as = 230.0<sup>68</sup> grams.

In a footnote to the above, Kelly says that <sup>erroneous</sup> the earlier/figure of 3557 grains anglais for the marc castillian ((a figure repeated as recently as 1965! see below)) derived<sup>s</sup> from the work of Kruse, Nelkenbreker and Gerhart, who had equated~~xxx~~ the marc to 4,796 aas de Hollande = 3557.6 grains anglais. At the Tower Mint, London, a group of Spanish sample marcs were furnished to Lord <sup>h</sup>Castlereag~~y~~ by different consuls<sup>s</sup> in Spain,<sup>1818</sup> and the quoted figure is based on the heaviest of these.

Here are the actual 1818 figures, cited from Doursther/<sup>s.v. Marc</sup> (ref. below)<sup>249</sup>:

Marca de Madrid, furnished by Consul-General Meade: <sup>55</sup>3550 gr. angl.

Barcelona	"	"	Baker:	3550.75	"	"
Cartagena	"		Amalther:	3550.5	"	"
Málaga	"		Laird:	3551		
Cádiz	"		Mat <sup>t</sup> thew:	3552.3		
Alicante	"		Athy	3537		
"Corogne"	"		Allen	3552		
Valencia	"		Waring	<sup>3</sup> 2557.6		

The point of citing these is that there was evidently considerable confusion as early as 1818 (probably for generations earlier) among English traders dealing with Spanish people or Spanish goods; and it indicates that if there were these diversities of weights and measures in Spain itself, how much more ~~xxxx~~ in Mexico?

Horace Doursther, Dictionnaire universel des poids et mesures anciens et modernes...1840(reprint, Amsterdam, Meridian, 1965).

p. 298: Pistole quadruple, Once (= Onza), 8 Escudos

1730- <sup>7</sup> 32	27.0602 grams	917 F (= 22 Carats)	= 24.8052 <del>xx</del> <sup>pure</sup> grams
1772-86	do	896	21½ 24.2414
1786--	do	875	21 23.6777

of the initials MF. If the V is taken as designating Felipe V, then the date for each of the Cross Potent dies is no later than 1746, and the MF is likely to represent the two assayers whose initials appear on Mexican (o/M) 8 Reales coins of 1733-54: Manuel de la Peña, 1733-63, and Francisco de la Peña, 1733-54. On the other hand, if we take the V to refer to the King's Fifth, then MF has a different meaning. A probable reading is then the initials of the two assayers on duty in 1762-70 (the years in which initials MF are again found): Manuel Assorin, 1754-70, and Francisco de la Rivera, 1762-70. It may not be a coincidence that in the year 1770 both the forms FM and MF are found (on 8 Reales coins, Harris 225-6), and that the Dos Mundos die found on these ingots shows the date 1770 while its Crowned Arms reverse shows FM. However, the Cross Potent's MF may have some other meaning.

The above interpretations afford a possible test for temporal consistency. In order to devise such a test we need to know whether the 1770 Dos Mundos was stamped before, simultaneously with, or after the Cross Potent die, on those ingots in which both appear. There are none in which overlapping exists between Cross Potent and Dos Mundos; but we may be able to arrive at answers to this question by more indirect means. It would be fantastic to assume that the same Cross Potent stamps were ~~XXXXXX~~ still in use in 1770 if they originated in the 1740's. Further, if the ingots are forgeries, the assumption is that their maker had all the stamps simultaneously at hand; and sooner or later there would prove to be at least one instance of a real anachronism, such as (for instance) if we found the Cross Potent dies to date to 1770 while a 1744 or 1746 date stamp followed one of them. It is difficult enough to understand why Types X/<sup>and Z</sup> would be found on ingots dated 1744 and 1746 if <sup>they are</sup> ~~XXXXXX~~ 1741 products.

Doursther says that the identical standards cited above were in use in Mexico, to conform with Spanish usage.

p.368 gives the onza or onça = 1/8 Marco de Castile as 28.751 grams, and quotes Altés (Traité de monnaies, poids et mesures, &c\_, Marseille, 1832) to the effect that the onza was in use in Mexico after 1731, but no longer in Spain itself, as by the Decree of August 31, 1731 the marco castellano was divided into 50 Castellanos instead. As of 1830, the marco castellano was 230.25 grams or 3553.68 English grains. This equation means that Doursther used a conversion factor of 1 Gram = 15.434006 grains. Translating the English grain weights into the modern equivalent of 15.432356 grains, we reach:

alloyed  
Weight of ~~pure~~ gold in the onza, ~~was~~ 27.0602 old reckoning, = 27.06<sup>3</sup>092 new reckoning. (The weights of pure gold are respectively 22/24, 43/48 and 7/8 of the above figure, should these be needed.)

Weight of the marco castellano = 230.25 grams old reckoning = 230.276 grams new reckoning.

Angelo Martini, Manuale di Metrologia, Torino: Ermanno Loescher, 1883.

p.322: Marco, Spanish gold or silver weight, = 4 Cuartos = 8 Onzas, =  
= 128 Adarmes  
~~20marcavmas~~ de Alicante: 237.328 grams;

de Barcelona: 267.333 grams (the local name for Adarmes is Arienzos)

de Madrid, before Jan. 31, 1859: 230.046450.

This last is equated to the Marco de Castilla or Marco Castellano, divided into 50 Castellanos. The Madrid standards were identical in Seville(346).  
p.325:

The Onza de Oro (tariffed at 8½ to the marco) is 27.064 grams and has been so since 1644. However, the legal fineness of coins has varied --1644: 22 Quilates = 916 2/3 Fine; 1700: ~~200~~ 21 Q = 875 Fine; 1729-72 again 22 Q; after 5/29/72, 21½Q or 896 (895 5/6) Fine-

p. 346: In Mexico, the Onza o Doblon de 16 Pesos was ~~was~~ 27.064 grams (= the Madrid standard), but its fineness varied: until 1772, 916 2/3 F; ~~sp 12~~ after 5/29/72, 896 i.e. 895 5/6; after 1786, 875; this same weight and fineness recur even after 1866. At this period the gram was equated

in various metrological tabl<sup>es</sup>~~es~~ ~~in~~ to 15.4323478 grains, which means that Martini's figures may be taken as is.

~~Lodovico Eusebio~~

Lodovico Eusebio, Compendio di Metrologia Universale, Torino 1899, reprinted, Bologna, Forni Editore, n.d., gives a weight of 230.046 grams for the marco; this is equated to 3550.16 English grains, and appears to be an averaging of several of the above fig~~ures~~.

Bruno Kisch, Scales ~~and~~ Weights, a Historical Outline, New Haven & London: Yale Univ. Press, 1965, p.249:

a.v.xMarca: "In Spain the Aragon marca =  $\frac{1}{2}$  pound = 8 onças = 32 quartos (cuartos! WB) = 128 arienzes (adarmes) = 4,096 granos = 230 grm. The Castilian marca (Madrid)= 8 onças = 64 ochavos = 128 adarmes = 384 tomines; or 1 marca = 24 karat = 96 gran gold or 12 dineros or 288 gran silver. ... In Barcelona the Catalanian (sic) marca = 272.67 gm. The marca of Val<sup>e</sup>ncia = 237.9 gm." These last two are un~~co~~nfirm~~ed~~ed by any other reference.

In another table ~~Kisch v~~ <sup>Kisch v</sup> ~~gives~~ <sup>gives</sup> the following as th~~ough~~ <sup>ough</sup> they were separate standards:

Madrid. Marco de Castile. 1 Marco = 8 onzas = 64 ochavas = 128 adarmes = 384 taminos (sic) = 4,608 granos = 230.074 ~~g~~rams.

Valencia. 1 Marco = 8 onzas = 32 cuartos = 128 adarmes = 3557.6 English grains ((see above~~2~~!)) = 230.5 grams.

With this degree of confusion, it becomes necessary to check primary sources. Felipe Mateu y Llopis, Catálogo de los ponderales monetario del Museo Arqueológico Nacional, Madrid 1934, has fortunat~~ely~~ely provided access to these, and pinpoints the confusion. On p. 120, he cites for the reign of Felipe IV (1621-1665) the Mexican Doblon de 4 Escudos as 13.385 grams, 901 Fine, and the Doblon de 8 Escudos of the same period as 26.876 grams, 915 and 909 Fine, after Bonneville's assays. That would mean that the 4 Escudos pieces were slightly debased and the 8 Escudos coins were lightweight, despite laws penalizing the issue of



substandard coins. It is extremely unlikely that Sr. Mateu would have published such figures based on tests of a single sample coin of each denomination; more likely these were averages, which ~~was~~ would be worse than results of tests of a randomly heavier or lighter specimen. If we assume that these figures were in fact those at which the coins were intended to be issued, they correspond to two inconsistent standards at the Mexico City mint. How this works out is that the <sup>have a weight such</sup> doblon or doubloon or 8 Escudos coin is supposed to ~~have a weight such~~ that  $8\frac{1}{2}$  of them will equal one marc (marca, marco). Now  $8\frac{1}{2}$  of the 26.876-gram ~~dobloons~~ corresponds to the <sup>o</sup> marco castellano at 228.446, and the corresponding figure (17 of the 4-escudos pieces) gives the marco as 227.545, both these figures <sup>in great contrast</sup> ~~corresponding to~~ to the range of 230.04645 to 237.9 grams per marc<sup>p</sup> earlier reported from the above quoted sources.

Coming closer to the period of time in which the controversial ingots were supposed to have been made (the reigns of Felipe V, 1701-1724, 1724-46), Mateu <sup>(p. 129)</sup> quotes the royal edict of August 31, 1731, titled "Declaración del marco de Castilla,..." published in Madrid "en la emprenta de Juan Aritzia, calle de Alcalá," to the effect that gold was henceforth to be coined at 22 Quilates (= carats) fineness, and that the marco castellano was to be reckoned as 50 Castellanos, this marco supplanting all previous standards. After May 26, 1731, (p. 132) only the marco castellano was in use--no longer the Italian ~~standard~~ marca, or rather any of them. (Kisch cites the marca of Milano, Ferrara, and Bergamo as 235 grams; that of Piemonte as 246 grams; and that of Venezia as 238.5 grams. In each instance the marca was divided into 8 oncie <sup>= 32</sup> ~~xx~~ <sup>32</sup> quarti, = 192 denari, = 1,152 carati = 4,608 grani, though some of the intermediate weights were not in use in some locales.) The effect of this legislation was that the gold coins of Spain would be coined to a somewhat lighter weight standard



than formerly; but what exactly this standard was remained open to question, and the question could be answered by checking actual coinstandard weights in the Museo Nacional. There were three of these:

62. For the 8 Escudos of Felipe V, before 1731. Truncated pyramid, 26.85 grams!!

63. For the 8 Escudos of Felipe V, after 1731. Round, marked Vooo. 26.7 grams!!!

64. For the 4 Escudos of Felipe V, after 1731. Round, marked oooo. 13.5 grams!!!

No marco weights or castellano weights of this period are included. (The older reckoning of the marco as 8 onzas, 64 ochavas, 384 tomines or 4,608 granos was again in use by 1781.)

The significance of these weights is immense. Weight no. 62 gives the marco as 228.225 grams (compared to the 230-odd <sup>above</sup> ~~the marco~~ described). Weight #63 gives it as 226.95 grams, which is lighter than anything previously cited. Weight #64 corresponds to a marco of 229.5 grams.

These figures, supposedly official in Spain, would also have been official in Mexico (Doursther, p. 324). Supposedly they remained unchanged, at least respecting the standard weight of the 8 Escudos, until the late 19th century. I tend to trust Martini's figures (p. 325) indicating that the onza remained constant at 27.064 grams ever since 1664, corresponding to a marco of 230.044 grams. (Why Martini rather than Kisch? Because Kisch picked up on several old errors without recognizing them as such, in particular the marco de Valência at 3557.6 grains. However, Kisch does give the marco de Castile as 230.074 grams, which is close to the 230.044 from Martini.)

We may accordingly assume that the actual Spanish standard was ideally ~~230.044 grams~~ a hair above 230 grams, but in practice lower. The figure of 230.04 grams is unlikely to be bettered; but there would be uncertainty about any additional digit after the decimal place, and

similarly for ~~mm~~ the ~~mm~~ onza--27.06 grams, any additional significant figures ~~ms~~ being unreliable.

These will be the figures adopted for purposes of the present research. We may presume that if the controversial ingots are in fact forgeries, either they would be made to no standard whatever, or at best to one of the most readily available/<sup>published</sup>weight standards, including any errors in this publication. In particular, if the ingots correspond to the Barcelona or Valencia marco (or submultiples thereof) as given in Kisch, that would be reason to suspect that they were ~~xxxx~~ made to conform to published erroneous~~s~~ figures used by Kisch. The older standards are unlikely to have been known to any forgers in the 1950's, and the more obscure their published sources, the less likely they are to have been known to forgers.

One difficulty with the theory that the ingots were forgeries is in the very profusion of stamps and dies which Buttrey made grounds for complaint. There were at least seven woodblock stamps reading HISP ET ID, eight o/M "mintmark" stamps, two PHS V logotypes, three cantoned cross dies with castles, V and MF, etc. By all reasonable criteria, such multiplicity suggests a large-scale operation--suggests that the surviving ingots began as part of a much larger group. Whether or not we credit the story told by John J. Ford that his source rescued them from immediate scheduled melting at Penn Smelting Co., Philadelphia (because the ingots had been obtained at a time when the Treasury was adamantly opposed to private ownership of gold ingots), the "remnants" theory fits the data better than the Buttrey hypothesis that these represent the corpus of a single forger's output.

Even in the early 1950's, manufacture of this kind of ironmongery posed formidable problems in technology and cost--quite aside from the maker's familiarity with 18th century letter forms. The various dies and stamps must have been hand made, by processes that in the 1950s would have been prohibitive in time and cost compared to the prices for which Ford's source sold the ingots. Some of the smaller fragments were reportedly given away at the time, as souvenirs. Ford's own records (he tells me) indicate that many sold for slightly above bullion value: hardly enough for recovery of costs of manufacture of dies and punches! It is also claimed that some of the largest ingots (like some of the more unattractive fragments) found no takers and were melted. Mutilation of ingots, as we saw earlier, certainly points to provenance in a pirate's or privateer's hoard; they must have been counted as just so much raw bullion. For a forger who knew anything about coins to do this seems either colossal stupidity or a subtlety of foresight far above anything elsewhere reported in numismatics. Has numismatic finally had its Jean de Sperati, or are we witnessing yet another smear campaign?

POSSIBLE ILLUMINATION FROM ARIZONA?~

Part of the guilt-by-association endeavor on the part of Prof. Buttrey dealt with a mysterious round ingot, reputedly originating with the source of other controversial items. This is the so-called "Tubac" ingot, an unwanted, unasked-for and irrelevant addendum to Plate VI of my Encyclopedia Britannica article (NUMISMATICS: USA). Therein it was labeled "Gold coin-ingot (!) issued by the Jesuits in 1707 at their Tubac mission in Arizona."

The ingot is cylindrical; on obverse, in sunken oval, is i / TUBAC / 1707 On reverse, cross potent, quarterly: 1 and 3, castle; 2, large V; 4, large K. 43 mm. Long since adjudged fraudulent.

According to John L. Kessell, Mission of Sorrows: Jesuit Guevavi and the Pimas, 1691-1767, Tucson, 1970, p. 51, there was no Tubac mission. Tubac was a rancheria de visita or way-station for priests of the Guevavi mission; it is a Pima Indian village in Sonora, fortified in 1752 by a Spanish garrison, on the west bank of the Santa Cruz river, approximately 45 miles south of Tucson--as shown on earlier maps including those in the endpapers of H.H. Bancroft, History of Arizona and New Mexico, San Francisco, 1889 (reprinted, Albuquerque, 1962). Today it is part of one of the state parks.

The ingot's design does not allow of any definite interpretation, especially the V and K. The V may mean either Felipe V or Quinto a la Corona. K was not part of the Spanish alphabet, and in the 18th century Arizona mission context it would only have been interpreted as an allusion to Eusebio Francisco Kino (1644-1711), the great Jesuit missionary and explorer, who visited the region at least nine times between 1681 and 1702 (but not afterward). Kino's alleged connexion with the ingot, if any, is obscure. The Jesuits are supposed to have discovered and exploited gold mines, but their locations have never been determined. (Bancroft, op. cit., p. 362.) Kessell (p. 39) found the earliest docu-

# Breen--Mexican Ingot report

mented references to Tubac as of Holy Week, 1726; Father Kino's voluminous accounts (cited in detail in Herbert E. Bolton, Kino's Historical Memoir of Pimeria Alta, 1683-1711, Cleveland, 1919, 2 v.) fail to mention Tubac at all; and Kino's own map of the area (1705, reproduced in the frontispiece of Bolton, vol. 1) does not show the place. Nor do early inventories show any quantity of gold in that area, in Jesuit hands; the Indians continued to live in simple poverty.

This ingot's falsity was used as an argument for the falsity of any and all other ingots and similar unpublished and/or controversial items passing through the hands of Paul Franklin and/or John J. Ford Jr. (including many of the Mexican gold ingots herein studied), in Prof. Buttrey's (unpublished?) article THE TUBAC INGOT, of which I have seen a photocopy of the original typescript. I have no grounds for belief in the Tubac ingot's genuineness. The inconsistencies in available historical evidence (above) argue against it, and would continue to do so even if we take Ford's conjecture that the date should possibly read 1767: which would leave the K even more difficult to explain. Buttrey's "analogy between the two bodies of material" (the Tubac ingot and the Mexican bars) "which implies that both the ingot and the bars derive from the same forger. The context in which the ingot made its only public appearance further suggests that such is the case..." is a classical instance of guilt by association, going well beyond any evidence Buttrey might have discovered, and in the case of the Mexican bars, it is irrelevant.

Or is it? If one could find any identity of style between the fake Tubac ingot and the Mexican bars, falsity would be far easier to demonstrate, as this would show yet another inconsistency.

Let us look at the cantoned Cross Potent die, with its two castles and its V. This is the only item in Latin American numismatics--other than the bars herein under study--which shows anything similar. Can

we deduce any similarity here going beyond the device itself?

Immediate points of departure include the bordure, the letter V, and the form of the castles. The bordure is not conclusive, as it consists of four dashes separated by 7 or 8 pellets on the Tubac ingot, as against alternating dashes and dots on the Cross Potent dies. They are not distinct enough on the Tubac Ingot to investigate punchlinkage.

On the other hand, the letter V in the Tubac Ingot is of startlingly similar form to that on all three types (X, Y and Z) of Cross Potent dies. Rectangular serifs, right (sinister) arm longer than left; both arms concave outwards; vertex and left (dexter) serif touch cross arms. The resemblance is obvious on all the Cross Potent dies, though most close on the Type X.

When we study the castles, the resemblance is even stranger and harder to understand for anyone not already committed to Buttrey's position. On the Tubac Ingot--unlike any genuine Latin American or Spanish instance of the castle as a device--the three towers are represented as with curved walls, concave outwards on the middle or tallest tower, in both cantons. In all genuine Latin American and Spanish uses of the castle as a device, the three towers are narrower, vertical, and with straight sides.

But the same peculiarity is also found on the castles on ALL the Cross Potent dies on the Mexican bars! This is a suspicious circumstance. We are unable to account for it unless on the hypothesis that the forger of the Tubac Ingot copied the device on (or from) one of another of the Mexican bars, some time after the latter came to light.

ERIC P. NEWMAN NUMISMATIC EDUCATION SOCIETY

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Craig and Roxanne Smith  
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Freeland, WA 98249-1120

July 31, 2000

In my July 17, 2000 letter of appreciation to you I forgot to ask you to look for a page or so which seem to be missing from the four page undated typed item entitled at the top of each page "Breen-Mexican Ingot report". The fourth page ends in the middle of a sentence and one or more pages should have followed.

Would you be kind enough to see if you can locate that material and send me a photocopy. I would be very grateful.

You certainly have given me an enormous amount of things to think about, thank you again.

Your friend,

Eric P. Newman

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July 17, 2000

Your cooperation in sending me your Breen material on Mexican bars, etc. is not only appreciated but overwhelmingly important to us. It will take weeks to digest but is amazingly interesting. Poor Walter was certainly in a difficult position.

I think I may have a loose page and want to be sure all of the pages you have are included.

The April 9 (no date or place) letter mentioning fear is probably 1981 because it mentions a letter being enclosed about the ingots and it could be a side letter (not to be shown) with the main letter.

The April 9, 1981 letter from Berkeley mentions the status of the Mexican ingot report but does not indicate an enclosure. You kindly sent the letter in various sizes so all of it is easily readable.

There is an undated PRELIMINARY REPORT of 35 pages, the first page being unnumbered and typewritten, the next four numbered and typewritten, and the last 30 being photographic or drawn illustrations with handwritten data.

There are 2 pages typewritten and unnumbered with first line indicating it is omitted from the catalog. It may be part of the above and relates to the Tubac ingot.

There are 9 unnumbered typewritten pages entitled DISCUSSION which may be part of the last group.

There is a 33 page Draft V dated March 1981 entitled PRELIMINARY REPORT etc. which is numbered except for the first page but it has no illustrations attached. Each page is topped with BREEN-MEXICAN INGOT REPORT except the first page with a larger title of PRELIMINARY REPORT etc. This report is obviously later than the previously mentioned PRELIMINARY REPORT.

There is a four page undated typed item entitled "Breen-Mexican Ingot report" on each page, the pages being unnumbered. This could have been attached to the April 9, 1981 letter. It also relates to the Tubac ingot and clearly indicates the Tubac ingot is false.

Then there is a loose unconnected page of two typewritten lines starting with an incomplete phrase, part of a sentence carried over from a prior page. It also has a beginning of a sentence which is not complete. Can you check to see if something is missing or is this just an enclosure to Apfelbaum which Breen intended to be discarded.

It is amazing that Breen's opinion must have been worked over for many years and that there were so many drafts. His interlineations show how careful he was trying to be and how overwhelming his quantity of detail was to protect himself by mystifying everybody.

Please therefore forgive me for asking you to recheck. You said that if we had any questions to contact you. It is so important and has so much confusion. Thanks again.

Thrive,

